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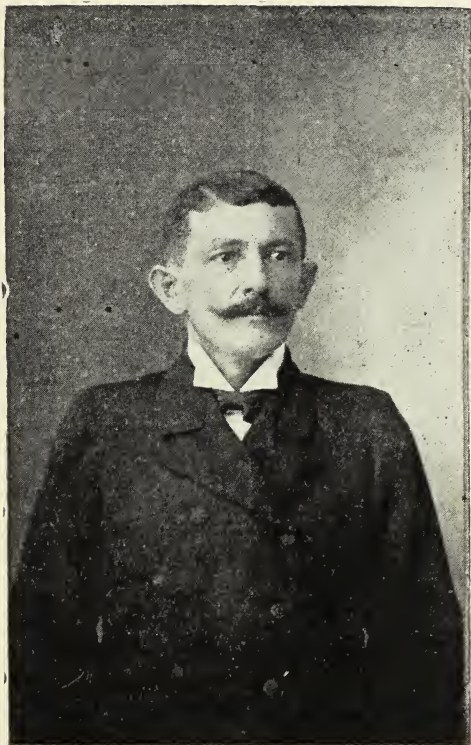
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PROPOSICIONES

ACEPTADAS EN LAS DISTINTAS SESIONES DEL CONGRESO.

Proposición del Doctor Charles Chassaiguac.

“Owing to the suffering and to the serious danger to health and life for which the mosquito is known to be chiefly, if not solely, responsible, it is the imperative duty of all communities and governments to use all the means in their power for the destruction and gradual annihilation of the pestivorous insect in question”.

Proposiciones de los señores Doctores Luis Toledo Herrarte y José Azurdia, Delegados de la República de Guatemala.

1º Presentación en el próximo Congreso Médico Pan-Americano de la Farmacopea Internacional Americana.

2º Presentación del Código Internacional de Sanidad.

3º Presentación del Código Internacional de Temperancia.

4º Como consecuencia de la anterior, recomendación del establecimiento de casas de Temperancia.

5º Creación en el programa del próximo Congreso de una Sección de Enfermedades de los Países Cálidos.

6º Recomendación de crear la Cruz Roja Americana en el orden civil y en el orden militar.

7º Recomendar eficazmente la erección de cátedras de Medicina legal en los estudios oficiales de Jurisprudencia.

8º Recomendar que se proteja ampliamente la lucha anti-tuberculosa.

Proposición del Doctor Hugo Biffi, Delegado de la República del Perú:

1º “La conveniencia de recomendar que en los países Americanos, sobre todo en los de la costa del Pacífico, se hagan obras de saneamiento en los puertos y se funden, en los principales de ellos, estaciones sanitarias completas, organizadas de un modo especial para combatir la peste bubónica y la fiebre amarilla.

2º De la misma manera recomendar desde luego, por lo que toca á la defensa contra estas enfermedades, la adopción de reglas y criterios uniformes, para que las medidas sanitarias oportunas no causen graves perjuicios á los intereses comerciales.

3º La oportunidad de que se establezca un servicio de información recíproca y directa entre las direcciones técnicas sanitarias de los países interesados.”

Segunda proposición de los señores Delegados de la República de Guatemala:

“Los Delegados del Gobierno de la República de Guatemala, tienen la alta honra de invitar á los señores Congresistas para que, si lo tienen á bién, sean muy servidos de señalar á Guatemala, Capital de la Repúblida, como centro de reunión del próximo Congreso Médico Pan-Americano. El pueblo y Gobierno de Guatemala sentirán legítimo orgullo de esa designación; y de poder albergar, dándoles la más hidalga hospitalidad, á los miembros distinguidos que del Continente concurren al Quinto Congreso Médico Pan-Americano.”

THE PHARMACOPEIA

AND ITS RELATIONS TO DRUG THERAPEUTICS

BY F. E. STEWART, PH. G. M. D. EAST ORANGE, N. J.

Among the many obligations accepted by the physician when he receives his license from the State is the obligation to render to the State certain professional services in regard to the *Materia Medica*.

In exchange for the license to practice the art of drug therapeutics the State has a right to demand that the origin, nature, composition and methods of manufacturing (or preparing) compounding and dispensing medicines, be published, reduced to law, embodied in system and protected from pretense and error by a changeless nomenclature; that practicable standards be established for the identity, character, quality and strength, of every *materia medica* product, and that the various methods for preparing drugs for therapeutic use be compared, and those which, all things duly considered, produce the best results, be generally adopted. The State has a right to

demand this for two reasons; first because progress in materia medica science is impossible unless these demands are complied with; second, because there can be no rational drug therapeutics without it. This is made still more apparent when it is considered that the only way to truly ascertain the therapeutic value of a new therapeutic product is to prove its virtues by physiologic and clinical tests as carried on under the control of competent observers; that these tests must be conducted under varying conditions, as pertaining to the drug, to the preparation of the drug, and to the condition and environment of the persons and animals upon whom the tests are made in sickness and in health; also that the knowledge thus involved must be taught to the profession, and to those entering the profession, by means of the professional press, including text-books and periodicals.

Now the very basis upon which all this knowledge rests is the pharmacopeia. In it is supposed to be contained a very, comprehensive list of the drugs, vegetable, mineral and animal, used by the medical profession in treating the sick, with tests for determining their identity and purity, and directions for preparing them in a proper manner.

It is evident, therefore, that the pharmacopeia is also the foundation of all rational drug therapeutics. Take away the foundation and the superstructure falls to the ground.

No argument, or statistics are necessary to prove that many of the medicines prescribed are not contained in the pharmacopeia, for that fact is too well known to admit of controversy.

What is the result? The result is that a large part of the knowledge of the so called newer materia medica has never been properly classified. It cannot be reduced to law and embodied in system and protected by nomenclature,

until full knowledge is published. Therefore, so far as these products and preparations are concerned it becomes the duty of the medical profession to secure this publication and classification:

For many years past those of us interested in materia medica science, and in the practice of the useful arts of pharmacy, *pharmacognosis*, pharmacodynamics, and drug therapeutics, have endeavored to secure national legislation for the establishment and enforcement of standards for materia medica products and preparations. Under the various names of Brosius Bill, Hepburn Bill, Mc Cumber Bill, etc we have had this matter repeatedly before Congress, but have been repeatedly defeated.

The Mc Cumber bill, recently defeated, provides that the chief of the Bureau of Chemistry in the Department of Agriculture shall make or cause to be made, under rules and regulations to be prescribed by the Secretary of Agriculture, examination of specimens of foods and drugs offered for sale in original unbroken packages in the District of Columbia, in any Territory, or any State other than that in which they shall have been respectively manufactured or produced, or from any foreign country, or intended for shipment to any foreign country, which may be collected from time to time in various parts of the country. If it shall appear from any such examination that any of the provisions of this Act have been violated, the Secretary of Agriculture shall at once certify the facts to the proper United States District Attorney with a copy of the results of the analyses, duly authenticated by the analyst under oath, and it shall be the duty of every district attorney to whom the Secretary of Agriculture shall report any violation of this Act to cause proceedings to be commenced and prosecuted without delay for the fines and penalty in such cases provided." The term "drug" in this Act includes all medicines and

preparations recognized in the United States Pharmacopeia for internal and external use; also any substance intended to be used for the cure, mitigation, or prevention of disease."

"A drug shall be deemed to be adulterated, if, when sold under or by a name recognized in the United States Pharmacopeia, it differs from the standard of strength, quality or purity as determined by the test laid down in the United States Pharmacopeia official at the time of the investigation: provided, that no drug shall be deemed to be adulterated under this provision if the standard of strength, quality or purity be plainly stated upon the bottle, box, or other container thereof, although such standard may differ from that determined by the test laid down in the United States Pharmacopeia. It shall also be deemed adulterated if its strength or purity fall below the professed standard under which it is sold."

"Such drug shall be deemed to be misbranded if it be an imitation of, or offered for sale under the name of another article; or if the package containing it or its label shall bear any statement regarding the ingredients or the substances contained therein which statement shall be false or misleading in any particular, or if the same be falsely branded as to the State or Territory in which it is manufactured or produced."

The bill also provides, that any manufacturer, producer, or dealer who refuses to comply upon demand, with the requirements of this Act shall be guilty of a misdemeanor and upon conviction shall be fined not exceeding one hundred dollars or imprisonment not exceeding one hundred days, or both."

The advantages of the bill to drug therapeutics are apparent. Its passage would be a step in the right direction, and, the enforcement of its provisions another

step. But the bill does not include all that should be done in this connection. It is the duty of the profession to reduce all of the unofficial materia medica products and preparations on the market used by the medical profession in treating the sick to common standards so that there shall be uniformity in therapeutic effect. And the common standards, together with the names and description of the articles, and methods of preparation, should find place in the pharmacopeia. This also should be included in such legislation

The great obstacle to any such legislation in behalf of the pharmacopeia is the powerful opposition of the Commercial interests involved. This opposition was made very apparent in connection with a plan I suggested with similar intent. In 1881 I devised and organized the first scientific department connected with the large manufacturing houses. This department proved a great success, and as one of the results other large manufacturers have followed the example. At the same time I also suggested the founding of a national bureau of materia medica under the auspices of the Government at Washington with which the medical and pharmaceutical professions, including the manufacturers, might cooperate. This suggestion has met the strongest opposition on the part of the commercial interests concerned from the very beginning. Although endorsed by the Smithsonian Institution, and the medical departments of the Army, Navy and Marine Hospital Service, and aided by a Memorial to Congress on the subject by the American Medical Association, commercial interests defeated the plan. I brought the subject before the American Therapeutic Society while occupying the chair during the organization of that body, and again in a paper read before the society at its second annual meeting, but the commercial interest sent their representatives to the meeting and defeated the plan. It was then taken

up by prominent members of the American Medical and American Pharmaceutical Associations, who appointed a joint Committee for elaborating and perfecting it. Again the commercial interests defeated the plan, and the two association rejected it.

Now what is the reason why the commercial interests engaged in the business of supplying materia medica products and preparations are so strongly opposed to any plan to control the character, quality and strength of this output? These interests frankly gave the reason. It is because such a plan, if carried into effect, would "levelize" the output of these houses to the level of the pharmacopeia, and, by forcing all manufacturers to adopt and maintain common standards, take away the commercial advantages of competition as now understood by which one house is enabled to advertise its output as superior to the output of others.

This clearly shows that the practice of pharmacy, including the entire business of manufacturing and dealing in drugs, should be organized on a professional, not commercial basis, and conducted as a branch of medical practice under the joint control of the medical and pharmaceutical professions. The art of pharmacy should be subsidiary to the art of drug therapeutics. Medicines should not be advertised and sold promiscuously. Their use should be limited to the demands of a rational drug therapeutics as practiced by educated physician. This would include a line of open formula domestic medicines to be used by the people for emergencies. But this class of preparations should also have a place in the pharmacopeia, and be used in a rational manner by the public under the tuition of the medical profession.

I have frequently suggested these solutions of the problem in papers read before the national medical and

pharmaceutical societies, and have been met with the charge of being visionary and utopian, and utterly impractical. But I am to be found in good company in this my utopian dreaming. Hear what the Supreme Court of the United States said on the subject in the decision handed down in the Syrup of Figs case (No 36, Oct, term, 1902): "Some courts have gone so far as to hold that courts of equity will not interfere by injunction in controversies between rival manufacturers and dealers in so called quack medicines. It may be said in support of such a view, that most, if not all, the States of this Union have enactments forbidding and making penal the practice of medicine by persons who have not gone through a course of appropriate study and obtained a license to practice from a Board of Examiners; and there is similar legislation in respect to pharmacists. And it would seem to be inconsistent and to tend to defeat such salutary laws, if medical preparations often and usually containing powerful and poisonous drugs, are permitted to be widely advertised and sold to all who are willing to purchase them. Law might properly be passed limiting and controlling such traffic by restraining retail dealers from selling such medical preparations except when prescribed by regular medical practitioners."

Taking all of these facts into consideration, therefore; it is evident that there can be no satisfactory system of drug therapeutics which does not include the progress of the pharmacopeia and the maintenance of its standards; that these standards cannot be established and maintained without "levelizing the materia medica products and preparations on the market to common standards; that such leveling, being entirely opposed to commercial interests, requires this reorganizing of the entire drug business, and the change of its character from a commercial to a professional character, and that, owing to the obligations imposed upon the medical profession

by the State it is the duty of the medical profession to take this matter up, and, aided by the public, pass and enforce laws to attain this end.

The EARLY TREATMENT OF CLUB FEET.

GWILYN G. DAVIS.—PHILADELPHIA, U. S. A.

It has recently been urged by some orthopedic surgeons that congenital club feet be not treated in infancy but to wait until the child is a few years old. The reason advanced is that relapses are so frequent that it is necessary to do the work all over again.

It is our firm belief that, on the contrary, treatment should be instituted as soon as the deformity is noticed, within a month after birth or even sooner.

One must however be guided by the general condition of the patient. If the child is a strong, healthy one then the treatment cannot be commenced too early; if, however, the child is weak and sickly, treatment should be deferred. Many infants, for some time after birth, have a hard struggle for existence, and there is nothing to be gained by curing the club feet of a child who dies before it is time for it to walk. The treatment necessary for the

cure of club foot is a more or less painful and irritating one and should not be imposed on a child unable to bear it.

Most of the children so deformed are however usually so strong and healthy that the treatment necessary does not in the slightest degree impair their general condition.

A positive objection to waiting until the child has learned to walk, before attempting correction, is that the subsequent result is not so good as if otherwise would have been. A deformity which has been allowed to exist a few years becomes fixed, and the bones are distorted, and the ligaments and muscles shortened, and often to such an extent that the foot never regains its normal shape. It does not develop and grow correctly and is still a deformed foot ever after, even though the patient walks with the heel down and the sole flat on the ground. Therefore the best results are of necessity obtained by early treatment.

The question suggests itself why has the early treatment of club feet been in some cases, unsatisfactory? To this we would answer because suitable treatment has not been employed.

This may have been due either to a faulty method of treatment employed by the surgeon or to lack of co-operation, in carrying out the treatment, by those who care for the child.

While lack of ability or interest on the part of mother and nurse does sometimes render useless the best efforts of the surgeon, still, in my experience, it has been rare. Usually the mother is both willing and able to carry out her part of the treatment, most of them indeed are extremely anxious to do every thing possible to hasten a cure and soon acquire considerable skill in the necessary procedures.

The treatment we would advise is stretching and the use of bandages splints and shoes.

Stretching. This should be done both by the surgeon and by the mother or nurse. The surgeon shows the mother how it should be done and whenever the child is washed or at least once and better twice a day, the mother brings the foot as near as possible in a straight and normal position. The surgeon can see the child once a week and, with his hands, thoroughly stretch the contracted foot.

Bandages and splints. When the child arrives at the age of two or three months, after the foot has been stretched it is to be held as near as possible in a corrected position and bandaged, with a flannel bandage, from the toes up to the knee. In some cases this bandage alone will hold the foot nearly or quite straight. The bandaged foot and leg is then laid in a plain posterior, padded tin splint and bandaged firmly in.

This bandage and splint are removed once or twice a day, the parts bathed with alcohol and alum, and the foot thoroughly stretched and rebandaged and put back into the splint.

After a few months of this treatment the foot is readily brought so straight as to justify one in using a small shoe and side irons. This is more convenient and easier to apply than is the bandage and splint. It is to be worn night as well as day and the stretchings are to be continued by the surgeon as well as by the mother.

If this treatment has been efficiently pursued the feet will be capable of readily being brought straight and held straight by the time the child is ready to attempt to walk sometime between the first and second year.

After the child has commenced walking if, as is often the case, there is still a tendency for the deformity

to recur the surgeon must stretch the foot until it can readily be placed in the shoe with the sole flat and the heel down. In obstinate cases this stretching may be done under an anesthetic and over a Koenigs block or even if necessary by the use of one of the many club foot wrenches or stretchers.

The cause of lack of success is most often the failure of the surgeon to stretch the foot sufficiently.

It should be brought not only to a normal position but be over corrected so as to assume that of a slight valgus. If this is done the mother will have no difficulty in placing the foot properly in the shoe, the shoe will hold the foot correctly and the turning of the toes inward will disappear. Courage is to be the surgeons watchword in the treatment of obstinate cases.

This line of treatment in my experience has been so satisfactory that I feel it is a great loss to the child if it is not carried out.

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The cure of Inguinal Hernia

BY H. O. MARCY A.M. M.D. L.L.D. OF BOSTON, U.S.A.

The safe and permanent cure of inguinal hernia is one of the most brilliant triumphs of modern aseptic surgery.

No chapter in the history of our art is of greater interest, and the discussion on hernia and its possible means of cure has occupied a prominent place in surgical writings since the days of the Greeks and the Romans.

The many different methods devised for operative procedures are both instructive, and ingenious.

It is in evidence that the anatomists, even at the early periods, had demonstrated the obliquity of the inguinal canal in its normal development, but very naturally the changes which took place destroying this valve-like pressure, for the retention of the abdominal viscera, did not enter into an important surgical consideration: since any operation which involved the opening of the abdominal

cavity was considered absolutely unjustified, until a very recent period.

Perhaps the nearest approach to an intelligent effort to restore the obliquity of the canal, as a means of cure, was the operation of the late Mr. John Wood, of London B. 1825, D. 1891, who very ingeniously united the deep structures beneath the cord, by a double figure of eight silver wire suture.

This wire was introduced through the canal, upon the finger for the purpose of coapting the strong structures beneath the cord, and was not in any sense a cutting operation. Suppuration for the most part followed in a limited degree which showed that a wound thus made proved to be very generally an infected one. Dr. Wood was most industrious in the introduction of this method, reporting a long series of operations with many cures. Indeed this operation became, perhaps, the standard for the decade preceeding the introduction of antiseptic surgery.

The operation was difficult and few attained the skill, or obtained results comparable to those of Mr. Wood.

Such was the domination of, so called, classic authority that it does not appear to have occurred to any when operating for the relief, even of strangulated hernia, where necessarily a large open wound had been made, that a reconstruction of the tissues could be effected for the purpose of cure.

Mr. Lister's first and perhaps most effective demonstration of the value of antiseptic surgery was the opening of the larger joint cavities with a safety hitherto undreamed. This method was early applied to abdominal surgery, but in the earlier period drainage was insisted upon as a *sine qua non*, which necessitated the uttermost care in the application of frequent changing of antiseptic absorbent dressings.

The proper reconstruction of the deep structures is rendered possible only by the use of buried sutures.

One of the most prominent of the early American surgeons, Jamieson of Baltimore (*) is deserving of recognition for the value of his contributions, far beyond that which is usually accredited to him. He introduced the buried animal ligature for the occlusion of arteries, and published a history of his research work upon the changes which ensued when applied to the arteries of animals compares favorably with the better work of the more recent periods. It then met with such favor that he was awarded a prize for his essay in 1827, and for many years arteries were ligated, and the ligatures cut short, in the better surgical practice in America, and in England. Connective tissue structures in considerable variety were used, including the tendons of animals, but preference was generally given to sutures from indian tanned deer-skin.

All this however was ultimately lost and forgotten; since all wounds were commonly infected, and the heated discussions over the so-called inflammatory processes pertaining necessarily to such wounds, occupied the attention and filled the pages of most writers for a generation.

Ignorant of this splendid work, dominated by a new thought inculcated by Pasteur, Lister began his monumental labors resulting in a fundamental revolution in all surgical proceedings involving the infraction of the tissues. He traversed the work of Jamieson, although obliged by the restrictive laws of England to go to France for this purpose.

Notwithstanding all this, it does not appear to have occurred to Mr. Lister that the most marked distinctive fruitage of his demonstration lies in the aseptic coaptation

(*) Dr. H. J. Gamieson Proff. of Surgery in Washington Medical College, Baltimore.

of healthy structures applied to a great variety of wounds: since when I was his pupil in 1870, and for a considerable period after, he used through and through removable sutures and drainage tubes.

For years his inventive genius was most earnestly directed toward the devising in considerable variety of antiseptic dressings which should protect the wound from infection, subsequent to operation. Mr. Lister also gave us aseptic catgut ligatures, and sutures, so prepared as to be reliable, and trustworthy.

In 1870 I first operated, for Dr. A. P. Clark of Cambridge, upon a very pronounced strangulated hernia with a large opening where, owing to a bad asthmatic, bronchitis, in the emergency I entirely closed the wound without drainage, using buried catgut sutures. Primary union and complete cure followed. The lesson was not lost, and was speedily multiplied by others and the experience published during the latter part of the same year. Little by little the use of buried animal sutures was applied to wounds in great variety, the results of which were from time to time published.

The inherent defects of catgut caused me to institute a systematic search for better material. The ultimate fruitage of this, resulted in the discovery and utilization of tendons from the tail of the kangaroo. In the squirrel, the rat, and the opossum, and probably the whole Marsupial family the psoas muscle is composed of multiple fasciculi each having a tendon extending to the extremity of the tail.

The tendons from the small kangaroo furnish by far the best suture material yet found.

The forgoing introductory chapter seems necessary in order to make clear the factors essential for the cure of oblique inguinal hernia.

In the ultimate analysis of oblique inguinal hernia, these are as follows: the wound must be sufficiently large

for a proper demonstration of the varying conditions which may be found.

Usually in hernia of considerable size the peritoneal envelope,—the sack,—is freely dissected from its environment. It is usually to be opened and its contents returned to the peritoneal cavity.

In large old retained hernia it is frequently necessary to remove more or less considerable masses of adherent, deformed omentum. In this instance the stump must be very carefully sutured to prevent hemorrhage and subsequent adhesions of its fresh surfaces.

The sack is dissected quite to the base within the internal ring: evenly closed with a double continuous suture when under moderate tension.

The sack is then cut away, and the resilience of the peritoneum causes it to retract, leaving a smooth intra-abdominal peritoneal surface.

The cord is held by an assistant to one side, slightly on tension, in the upper angle of the wound.

The deep strong structures are evenly coapted by means of double continuous tendon sutures, introduced by a needle with eye near the point which serves as a shuttle for the carrying of the suture. This is exactly the stitch used by the shoemaker. The only care being not to constrict the enclosed tissues too tightly. The parts should be held in coaptation with the least possible devitalization: on this account the blood supply of the enclosed tissues is to be preserved as fully as possible. The structures included in this line of sutures, which go to make up the posterior wall of the canal, are the inner border of Poupart's ligament, and the conjoined tendon intrafolded with the relaxed tendon of the transversalis muscle. Not seldom certain muscular fibres are found beneath the cord.

In this way the posterior wall of the inguinal canal is greatly increased in length.

The internal ring is closely closed upon the cord.

The cord is now replaced in the new reconstructed canal, which is completed by closing over it the divided fibres of the external oblique.

A buried subcuticular fine tendon suture closes the external wound.

This is dried and sealed with iodoform collodion, reinforced with a few fibres of cotton.

This germ-proof dressing remains firmly adherent until loosened by the proliferating epidermal cells, usually a week or ten days.

There is generally some oedema of the scrotal tissues, but this subsides in a few days, and is unimportant. Three or four weeks should elapse before a strain is brought to bear upon the parts and the patient should be cautioned to exercise a little care for a considerable period, but no truss is applied.

In the accomplishment of this plan of cure as outlined, many operators have sought to modify unimportant essentials, and very naturally these surgeons have emphasized the exceptional value of their contributions to the subject.

I have described what I consider essential.

There is certainly very little disagreement at present as regards the hernial sack, and its contents. The narrowing of the internal ring from below upwards, in order to minimize as much as possible, the opening into the abdominal cavity, and increasing the length of the inguinal canal admits of no discussion.

The structures which should enter into the composi-

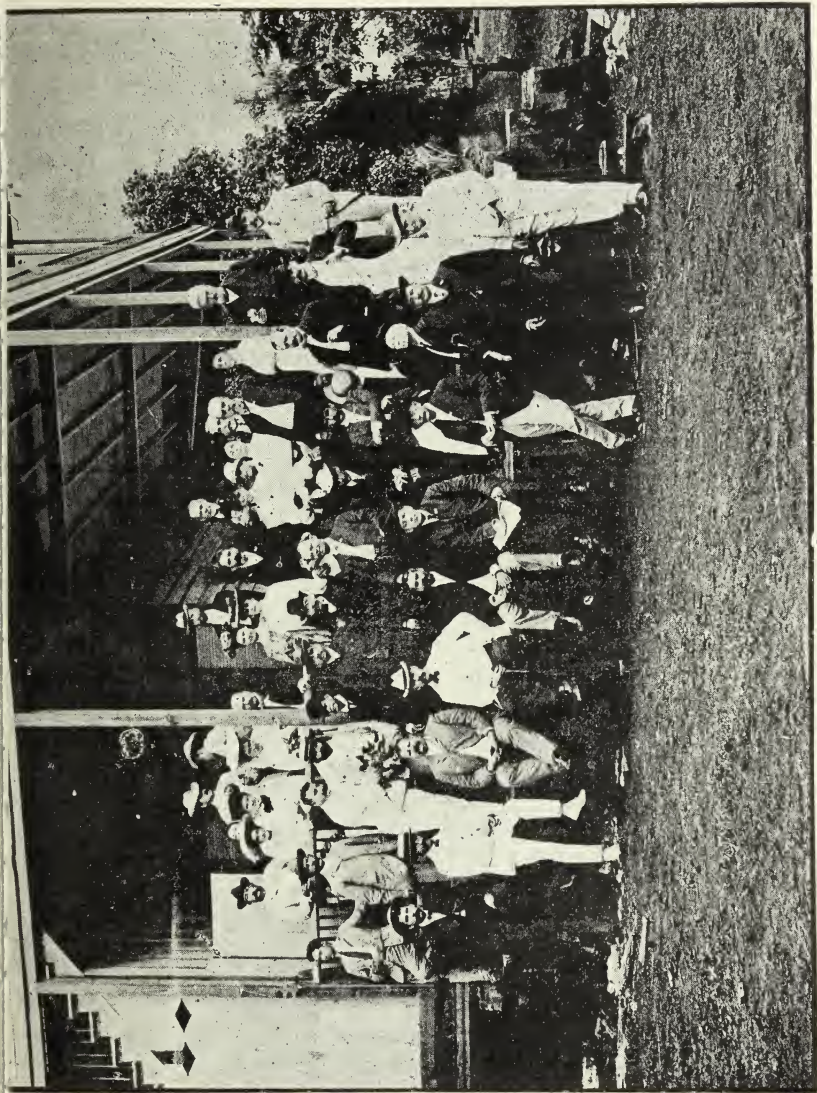
tion of the posterior wall of the canal and the method of their coaptation has been subject to a great variety of modifications.

One, would put all the strong structures beneath the cord; one, would make a new internal ring at another point of the abdominal canal: under certain conditions, one would utilize the pyramidalis muscle, transposing it to reinforce the weakened structures: one, would broadly imbricate the tendonous parts, hoping thereby to strengthen the structures. For these various purposes one would use silk sutures, another catgut instead of tendon: one, advocates the use of this needle, another that until instruction is lost in weary some detail although this debatable ground is reduced to such narrow proportions. These kaleiscope variations usually denominated by the name of its advocate, are presented in variety sufficient to fill a small volume.

I do not question that all these operators obtain good results, since these minor factors may be very important. The major ones must necessarily remain. These are the aseptic reconstruction of the inguinal canal so as to deflect the intra abdominal pressure to nearly a right angle with its long axis: the cord and its vessels restored to their normal nutrition and function. The one essential dominating factor is the buried suture, and this aseptic and absorbable. Its use pertains alike to the reconstruction of all well vitilized aseptic tissues, playing an ever increasing role in the technic of modern surgery, to which it is one of the most important of contributions.

180, Commonwealth Avenue

Boston, Mass. U.S.A.



ALMUERZO DADO Á LOS SEÑORES CONGRESISTAS EN LA CASA DE CAMPO "VERSAILLES" EN
LAS SABANAS DE PANAMÁ.

Some Observations Respecting the Treatment of Face Presentations.

THE SYNOPSIS OF A PAPER READ IN THE FOURTH MEETING OF THE PAN-AMERICAN MEDICAL CONGRESS PANAMA, JANUARY, 2—6 1905, by AGUSTUS P. CLARKE, A.M., M.D. CAMBRIDGE MASS.

Typical cases of face presentations do not appear to be very common ; the older statistics give the proportion of one in every three hundred. The author has met with such cases in his practice, once on the average in a hundred and fifty. Face presentations sometimes take place in consequence of a disproportion in the development between the posterior and anterior muscular structures of the foetal neck and thorax. Other causes are abnormal narrowness of the maternal pelvis. especially at the brim or superior strait, dolicho-cephalic head of the child and excess of liquor amnii are contributing causes. Early diagnosis should if possible always be made. The necessity of acquiring proficiency in making external ex-

aminations is insisted upon. Such examinations are demanded before rupture of the membranes. Schaltz's method by external manipulation with the hand has its advantage as an initial proceeding. Internal manipulation with pressure against the chin, brow, or vertex may sometimes aid delivery, as in mento-anterior cases. In mento-posterior presentations before impaction has occurred, rotation of the chin toward the symphysis pubis should be made. The child being alive and the case being of the mento-anterior variety and if impaction has begun to take place and the maternal pelvis is not too narrow, forceps may be used, otherwise external manipulation and version should be resorted to, especially if the funis is prolapsed.

When called in the later stages of a case of mento-posterior presentation, and the position of the face cannot be conveniently changed by manipulation, and yet the child is still alive, symphysiotomy offers the best method procedure for saving both the mother and the child. Craniotomy should be attempted only when the child is dead

TREATMENT OF THE UPPER AIR PASSAGES.

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Whether or not we side for or against those who claim that tubercular disease may primarily affect the upper air passages, we are bound to at least admit that very often we can find undoubted and well advanced lesions in the nose and the larynx, when the most careful physical examination of the lungs fails to reveal the remotest indication of the disease in these organs; there will be no cough and no expectoration to infect the upper organs in the passage over them, no night sweats and no emaciation; the nature of the process in the nose and throat is probably not suspected and diagnosis is made only after microscopical study of the tissue and finding of the tubercle bacillus.

Scores of this description have been observed by the author over periods varying from one to six years when finally as a rule pulmonary tuberculosis which closes the history of the case.

It is contended by those who oppose the primary localization of tuberculosis in the upper air passages, that the failure to discover evidence of pulmonary involvement cannot be taken as conclusive of the non-existence ; that the disease is in the lung, though in obedience, and presenting no symptoms from which a diagnosis is possible. With only this mere argument against primary localization in the upper air passages, while in favor of it we have the testimony of so many competent observers, our treatment, it seems to me, should proceed upon the theory that all cases are primary in which we are unable to demonstrate concomitant disease in the lungs.

Acting in accordance with this theory, it should be our business to as thoroughly as possible eradicate the diseased process as soon as we have discovered it for fear of further extension, even though there may be some already existing disease in the lungs, as it is very slight and not progressive, we shall still have done right in removing from the upper air passages a mass of diseased tissue which at least would have spread and infected neighboring parts, if it had not constituted the source of a general tuberculosis.

The question therefore, is not the presence or absence of an accompanying pulmonary disease, but rather the degree of its progress, for if the pulmonary tuberculosis is in a very advanced stage, so that the lesion above will become continually infected from the secretion ejected from the lungs, or if the patient must at any rate die of the pulmonary trouble, harsh or surgical measures ought certainly not to be undertaken unless for some special symptom which needs urgent attention.

Tuberculosis of the nose occurs, according to Chiari, more frequently in children than adults, and in women than men. It appears in the form of humor, infiltration or ulcer and is almost always located upon the anterior

portion of the septum, from whence it may spread to the floor of the nose or inferior turbinated body.

Melzi in a recent article (*Archives Internat. de Larynx, Otat eh de rhinol*, July & August 1904) has collected from the literature reports of 90 cases (26 ulcerations 62 granuloma, 2 caries of bone) of which 19 were said to be primary. Fourteen of these were said in the form of neoplasm, 5 of ulceration.

Tuberculosis of naso-pharynax and oro-pharynx is very exceptionally found unless in the late stages of pulmonary tuberculosis. Its connection with a laryngeal tuberculosis from which it has extended can sometimes be distinctly made out. when it will be seen to be located along the lateral pharyngeal wall and the posterior pitton of the palate.

Tuberculosis of the lymphoid structure of the throat (naso pharyngeal, oral and lingual tonsils) is perhaps much more frequent than usually supposed, because the researches of those who have made microscopical examinations here, has developed that a tubercular condition is quite often present in the tonsils in cases in which the disease would not have been suspected from mere inspection.

The importance of this observation from a therapeutic standpoint is all the greater because certain authors (Woodhest, Sathom, and Aufrecht) teach that this is the chief way by which the tubercle bacillus gains entrance into the system.

All cases in which the tonsils appear diseased and in which at the same time there is enlargement of the cervical lymphatic glands, should be regarded with suspicion and if it happen in children with hereditary tendencies the suspicion rises to the degree of a strong probability.

That part of the upper respiratory tract which is by far the most frequently affected with tuberculosis, and with which we are more particularly concerned therapeutically because of the distressing symptoms which result, is the larynx.

In the latter stages of advanced tuberculosis of the lungs the larynx is comparatively often involved, and treatment of some kind urgently demanded to relieve the acute pain which the patient suffers in swallowing and speaking and sometimes it is also necessary to undertake surgical measures to relieve the dyspnea due to stenosis. That something should be done under these circumstances, all agree, but whether it is necessary or profitable to institute treatment of any kind in the absence of these indications, and if so whether or not surgical measures are justifiable, are questions regarding which there is a wide diversity of opinion and practice.

With regard to tubercular disease located in any part of the upper respiratory tract outside of the larynx, we have not the same questions to consider and we have only to be guided by general principles: taking advantage of any drug which may be found particularly efficacious in treating the tubercular process where found.

In the nose if the process is limited to the septum the disease area should be thoroughly curetted, under cocaine and adrenalin, and lactic acid subsequently rubbed into the wound. If one of the turbinate is affected our procedure will be governed by the nature and extent of the lesion. If there be only a superficial ulcer present, frequent washing with alkaline and antiseptic solutions, and insufflation of a mixture of boric acid and iodoform will constitute the extent of our local treatment, if however, there be considerable infiltration the turbinate should be removed.

Ulcerations in the larynx of a tubercular character being very accessible should receive very diligent local treatment. The base and edges of the ulcer should be cauterized with lactic acid and at intervals between the use of the caustic methylin blue should be applied in the form of a powder or solution. This is one of the best agents we possess to promote the healing of the tubercular ulcer, but caution must be exercised to prevent toxic effects, which are generally manifested by abdominal pains and strangury.

In case of tuberculosis of the tonsillar structure, time should not be lost in spraying and dusting the parts, but the diseased organs must be removed as soon as the nature of the disease is known.

The indications to be met in treating the tubercular larynx are to relieve the distressing symptoms, and to eradicate the disease.

The symptom of which the patient complains most is the pain, present to some extent in using the voice but particularly distressing when he attempts to swallow. The dysphagia is sometimes so intense that the patient prefers to starve rather than suffer the pain.

Temporary relief may be obtained by directing a one or two per cent solution of cocaine into the larynx just before eating. Iodoform, which has been recently vaunted as of great value for this symptom has proved disappointing in the hands of most of us. Menthol and carbolic acid are still our most useful anesthetics and to be preferred above all others in pain of laryngeal tuberculosis.

A great many different agents have been recommended from time to time which have been supposed to have some special virtue when used locally to combat the tubercular process. We cannot in the limits of this short article ever name all of them much less discuss their res-

pective advantages. Of all, that one which has gained the strongest hold on the profession is lactic acid, recommended some twenty years ago by Krause. It is used in strengths varying from 20 to 50 per cent and under thorough cocaine anesthesia.

It is strongly escharotic and is sometimes followed by considerable reaction. It should never be used except in cases of a circumscribed ulceration and then only in the hands of one who is skilled enough to limit its use to the ulcerated area only. Of other agents which have been recently recommended as substitutes for lactic acid are sulphuric acid of phenol (Rovout) 10% solution of carbol-glycerine, or of lacto-carbol glycerine, (Batey) and ortho-parachlorophenol.

Surgical measures in the treatment of laryngeal tuberculosis first came into great favor through the writings of Heryng and Krause, who operated extensively in these cases and devised especially instruments for the purpose. At the present time it can be said that the curette and the cutting forceps are much less frequently employed in the tubercular larynx than was the case a few years ago, and the indications for their use have greatly narrowed. In certain cases in which the tubercular process in the larynx is circumscribed and the pulmonary disease not advanced especially if the patients tolerate well operative interference, removal of the disease portions from the arytenoid area, or the epiglottis is perfectly justified.

The operation of arytenoidectomy seems often to be followed for a while at least by a considered relief from the dysphagia which is a great advantage by letting the patient take his much needed nourishment.

The objections to these operations are that they may be followed by a serious hemorrhage, and an alarming reaction. It is contended also by some that they

promote a lighting up of a latent pulmonary disease or bring on a general tuberculosis.

The electric cautery possesses decided advantages in that it obviates these objections and at the same time accomplishes just as thoroughly a destruction of the tissue. It is followed, contrary to the general opinion, by practically no reaction, and in the hand of a practised laryngologists is both safe and effective.

Electrolysis has also been used but the results have not been as satisfactory as from the use of the electric cautery. It has been observed that in cases in which a tracheotomy had to be done of a threatening stenosis, that the tubercular process in the larynx has generally improved, and some of the authors have on this ground recommended it as a desirable procedure, even when not compulsory. But few physicians can bring themselves to advise an operation of this magnitude which can promise only a doubtful temporary relief, especially as the wearing of this tube attended with discomfort and may be a source of irritation.

We have spoken here only of the local methods of treatment; but we do not of course wish to be understood as considering these as all sufficient in the treatment of tuberculosis in upper air passages. We were obliged to confine ourselves to the treatment particularly applicable to the disease in these localities, but we feel that it is not necessary to insist that the general hygienic measures and climatic conditions which are so benificent to tuberculosis in general have their place here as well, should as far as possible supplement our local treatment.

SIMPLE OBSERVACION CLINICA

POR EL DOCTOR GUSTAVO ESCOBAR, DE MANAGUA, REPÚBLICA DE NICARAGUA.

Una enfermedad nueva, desconocida hasta ahora por la patología médica, llama hoy entre nosotros la atención é inspira á los vecinos de Nicaragua gran temor por la semejanza de sus principales síntomas con los de la fiebre amarilla.

Aunque los agentes figurados y parasitarios constituyen la etiología de esa enfermedad, es sin embargo una fiebre que no figura en grupo alguno de las enfermedades bacterianas.

Su naturaleza constituida por esta etiología viviente, solo es sospechada, y su tratamiento puede seguirse por analogía. La investigación científica de esta fiebre, es obra exclusiva, tal vez, del genio médico.

Esta fiebre en raros casos se inicia por un violento escalofrío, y en otros, por una sucesión de refrigeraciones fugaces aparentemente inofensiva, y está caracterizada:

1º Por la ligera elevación de una temperatura que marca en el paciente de 38º á 39º centígrados, y algunas horas después se eleva hasta 40º

2º Por el aumento de las pulsaciones normales.

3º Por golpes subjetivos que el enfermo siente en la cabeza y en la región lumbar, y

4º Por inapetencia, sed intensa, vómitos de materias oscuras y también por la fetidez cadavérica que el enfermo exhala de la boca cuando habla.

Al fin de este cuadro de fenómenos clínicos que tienen una duración media de uno á cuatro días, principia el segundo período que podría ser llamado de remisión, y dura regularmente de uno á dos días, y está señalado:

1º Por un sudor copioso.

2º Por un descenso crítico de su temperatura al grado normal, y

3º Por la vuelta del pulso á sus cifras comunes.

En algunos casos la cura puede llegar á ser completa, especialmente en los hijos del país; pero por desgracia repentinamente la temperatura se hace subnormal, empeora su estado y entra la enfermedad en un tercer período en que el paciente se pone amarillo y que podía llamarse estado de ictericia. Dura este período de uno á cuatro días, y arrastra los más grandes peligros para el extranjero.

En este período se presentan:

1º Vómitos negros.

2º Hemorragias en las cavidades nasales, y

3º Sangre de color muy oscuro en sus materias fecales; y por último, el enfermo sucumbe tras síntomas de creciente colapso.

La enfermedad en referencia, es una infección exógena, debida á la importación en el organismo de un parásito microbiano. Al empezar los síntomas de invasión, es muy posible confundirla con la atrofia aguda amarilla del hígado, con la tifoidea biliosa, con la fiebre amarilla y con la intermitente biliosa.

El contagio de la fiebre en cuestión, siempre lento y moderado en su desarrollo, sigue el camino de aglomeraciones humanas, como sucedió hace algún tiempo en el Cuartel de Momotombo en Managua, y poco ha en el Campo de Marte.

Se distingue de la fiebre amarilla, porque no se propaga como ésta, por las grandes vías de comunicaeión, terrestre, fluviales ó marítimas. Cuando las relaciones internacionales multiplican los contactos humanos, la fiebre amarilla, como cualquiera otra enfermedad de naturaleza epidémica, se desarrolla con gran rapidez sirviéndose de las naves como escala principal.

El enfermo atacado de esa fiebre desconocida constituye el principal peligro de la infección.

Sobre él deben actuar las precauciones profilácticas. Si el aislamiento del enfermo es difícil, no es menos eficaz el aseo en la casa, en las ropas y en la persona del paciente. Debe hacerse sobre todo su cuerpo un baño diario de alcohol helado.

Media onza de creolina en un litro de agua común y pura, regada todos los días en el interior del edificio y principalmente sobre las excreciones, sobre los productos alterados y hasta sobre el cadáver, es una medida muy cómoda y eficaz de desinfección.

La leche mezclada con algunas gotas de alcohol y hielo, en estos casos, constituirá un recurso poderoso como alimento y como antiséptico digestivo.

Si la inapetencia es absoluta, se mantendrán las fuerzas del enfermo y la antiseptia intestinal por medio de un enema, compuesto de medio litro de leche asociado á veinte gotas de espíritu de alcanfor y dos de ácido fénico administrado dos veces al día.

La buena ventilación y las bebidas abundantes heladas y ácidas, son de mucha utilidad para el enfermo.

No es conveniente llamar en auxilio de la defensa orgánica, el ácido salicílico, el sulfato de quinina, la creosota el yoduro de potasio ni el aurocloruro de sodio, porque nada pueden estos agentes contra dicha fiebre.

El estado sanitario de este país es bueno. El número de defunciones producido por esa fiebre no ha sido creciendo, y hoy esa epidemia ha desaparecido completamente.

Managua, Diciembre 20 de 1904.

GUSTAVO ESCOBAR.

PREVENTION AND REDUCTION OF DEFORMITY IN POTT'S DISEASE.

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It must be very evident to any one who has paid the slightest attention to the subject, that our treatment of Pott's disease is not as successful as it should be—not nearly as successful as it can be made to be. Were our treatment as ideal as it should be, there would be fewer cases recovering with marked deformity.

The fact that many of these cases are not treated at all until the deformity is very marked, and also the fact that many are treated by unreliable men—men who have no mechanical ability and merely make a pretence at treatment—taking both the above conditions into consideration, there is still left a large number of cases that become deformed beyond the slightest hope of correction,

while under the care of most excellent surgeons, and while wearing a plaster jacket or other appliance suppose to hold the spine perfectly steady. Better results can be obtained, and we are not doing ourselves justice when we fail to obtain them. The writer is of the opinion that no case taken in the early stage, before there is any deformity, or before the deformity is marked, need recover with anything but a perfectly normal spine, so far as contour is concerned, and many cases, probably fifty per cent who come to us in the later stages of the disease,—that is, the subacute stage, when the deformity is quite marked, can have the deformity reduced one half or entirely.

In tubercular osteitis of the knee or hip, we expect the child, under careful treatment, to recover with a straight and usually ankylosed knee or hip. To obtain a like result in Pott's disease is obviously a more difficult task—more difficult because the leverage is so small as compared with the available leverage in the case of a knee or hip, and because of the difficulty of applying a jacket or corset as snugly as you can a spica or knee bandage. But merely because it is more difficult, is certainly no reason for considering it impossible, or no reason for being satisfied with a recovery with only a reasonable amount of deformity. Our aim and expectation should be no deformity. I am not taking into consideration the cases in which we haven't the co-operation of the parents and patient, factors that are absolutely essential

There is no one single line of treatment that is applicable to all cases. As in all other pathological conditions, each case must be according to the special indications. So far as we know, there is no medicinal treatment in any way, shape, or form that has proven of the slightest benefit. Injections of Iodoform emulsion into the diseased

vertebrae have been tried and retried in this country and abroad, and we have no reason to think that any of the cases have been benefited by that treatment. Aside from such remedies as may be needed to keep up the general tone of the system, the treatment is purely mechanical.

All cases should wear some support, no matter whether the patient be confined to bed or not. The plan, so frequently pursued, of advising rest in bed, and not insisting upon some form of support, is just as far from being correct as it would be in the case of a tubercular knee or hip.

Cases under three years, or in undersigned children under four years, are best treated by being placed securely on a rectangular gas pipe frame. The frame should be made of gas pipe about $\frac{3}{4}$ inch in diameter, and three to six inches longer than the child, the width being slightly less than the transverse diameter of the child measured through the mid-dorsal region. Any plumber can readily construct such a frame at small expense. The pipe should be wrapped with a muslin bandage, or adhesive plaster and afterwards covered with a muslin bandage, the covering extending to within six inches of the foot of frame. This bandage is put on by simply passing the roller round and round the frame from top to bottom overlapping about one half each turn. Over this a covering of canvas is securely fastened. This canvas should be wide enough so that after covering the front and passing over either side to the back and being securely laced so as to give a firm bed, there will still be a space of an inch or so intervening between the edges of canvas. The length of canvas should be slightly less than the inside length of frame. The lacing in the back, extending from top to bottom of canvas will secure perfect transverse firmness; and perfect longitudinal firmness, is secured by means of straps and buckles, the

straps passing from edge of canvas anteriorly over the end bars, and being secured by buckles to edge of canvas posteriorly. Four straps are sufficient—one on either side both top and bottom. On either side of frame there are fastened to the canvas three buckles, wide enough apart so that the distance from top buckle to bottom buckle will cover the space that is to correspond to the chest and abdomen of the child. To these buckles a canvas apron is secured, the object being to hold the child firmly against the frame. At point on canvas that is to correspond to the seat of disease, sew two pads, preferably made of felting. Pads should be about one half inch thick, from three-fourth to one inch wide, and usually about three or four inches long, and be placed longitudinally one-half to three-fourth of an inch apart. In sewing on pads, the threads should pass through the edge of felting rather than the exposed surface in order that the threads may have no chance to excoriate the skin. A covering of rubber sheeting is sewed on to the canvas from a point opposite the sacrum to a joint opposite the knees.

At a point opposite the kyphosis the frame should be bent, the convexity of the bend being towards the kyphosis. The amount of bending depends entirely upon the child. Some children readily tolerate a great deal of hyperextension, while others will tolerate very little or none. Sometimes for the first few days, until the child gets used to the frame, it had better be used perfectly straight. Ordinarily the frame should be bent to an angle equal to the angle of deformity.

To this frame the child is securely fastened by means of the canvas apron, until all acute symptoms subside or preferably until the cure is complete. This may be any where from six or eight months to several years, but by the end of that time there will be either a complete disappearance of the deformity or a very marked recession.

In all cases, where there is no deformity in the beginning of this treatment, you can be absolutely certain that none will appear, and where the deformity is slight, you can be almost equally certain that the deformity will disappear.

The canvas apron above mentioned, should pass beneath the child's outer clothing, so as not to disturb the position of the child by the process of dressing and undressing. Owing to the presence of the rubber apron there is no necessity for taking the child off the frame for defecation or urination.

If for any reason, it becomes necessary to take the child off the frame for a short time, he should be placed on his back with a small firm pillow just beneath the Kyphosis. Under no circumstances should the child be allowed to sit up without a support

If deemed advisable, after the acute symptoms have subsided and the deformity is practically nil, plaster jackets may be applied, and if properly applied and kept on without the slightest intermission until the cure is complete, no deformity will ever result. The frame here described is fully described and illustrated in "Whitman's Orthopedic surgery."

In cases past four years of age there is no brace so universally successful as the plaster of Paris jacket properly applied and on the other hand there is no brace that is abused more, no brace that give such poor results as the plaster of Paris jacket improperly applied.

It is nothing uncommon to hear of cases in which the deformity has increased during the period when the child was wearing a plaster of Paris jacket. I am firmly of the belief that lack of watchfulness upon the part of the physician and parent and improper and careless technique upon the part of the physician, are the factors that are to blame in nearly every case showing an increase in deformity.

Every jacket should be so carefully, so smoothly applied that no pressure ; sore or other complication is going to arise that would necessitate its removal for a few days. To thus wear a jacket intermittently is almost as bad as to wear no jacket at all. One case will suffice to illustrate this point. A. O., eight years of age, entered hospital with high dorsal Pott's, no deformity. Treatment during following two and one-half years consisted entirely of plaster of Paris Jackets. A number of times during the two and one-half years the jackets were applied in such a manner as to be very uncomfortable, and to produce pressure, sores, thus necessitating their removal for a few days or a week. During these periods, the child was kept in bed wearing no apparatus. At the end of two and one-half years, deformity was extreme.

Most cases with a marked deformity give a history very similar to the above. So long as jackets are applied the least bit carelessly, so long as we get pressure sores and have to lay aside the jackets just so long are we inviting deformity. Another factor that is so productive of deformity is failure to carry the jackets *very high*, as well as *very low* in front. Of what possible value can it be to carry a jacket high and low in the back and cut it off short in front ? To do so simply encourages the spine to bend forward above the point of disease, thus encreasing the deformity. Obviously the higher the seat of disease the higher must we carry the jackets, so that in some cases of high dorsal or cervical Potts, the plaster should be carried up so as to support the chin and occiput, the plaster being moulded to fit the parts. As a general rule, we may say that the efficiency of the jacket increases exactly in proportion to its length, particularly its length anteriorly, owing to the greater degree of fixation.

The position of the patient during the application of the jacket is another factor that is of the greatest importance.

Without taking time to quote statistics we may say that the vertical position is by no means as effective as the horizontal, owing to the fact that in the former case we get very little hyperextension and therefore little reduction of deformity, whereas in the latter case we are able to get most any amount of hyperextension and therefore a great deal of deformity.

The horizontal position is the best maintained by means of the Taylor kyphotome, the Ridlon bridge, or the apparatus of Goldthwaite. Full description of these various methods may be had in standard text book on Orthopedics.

The important thing in either of these methods is to produce the maximum amount of extension at the seat of disease, and having obtained such extension to apply the jacket *high enough* and *low enough* that you will lose nothing that has been gained, and to apply it so smoothly and so strong, that a change under four months will be unnecessary.

The stockinet shirt or under vest, whichever is used next the skin, should be pinned or tied over the shoulders and pinned between the legs, care being taken to stretch it perfectly tight so that no wrinkles will result.

Pad the prominent places lightly, and bevel all pads so as to avoid any ridges. If every layer is applied firmly, *perfectly smooth* and, *thoroughly rubbed*, you need have no fear of pressure, and the jacket thus made need not be over a quarter of an inch thick to last fully four months, and should weight about one pound and should not have a suspicion of a wrinkle in it from top to bottom.

In this paper I have made no attempt to say anything regarding the many complications of Pott's disease, neither have I tried to take up the treatment of the

different spinal sections separately. Nor have I said anything about the many forms of treatment, other than the gas pipe frame and plaster jacket. There are many other methods that are doubtless very good. One of the best results I have ever seen was that of a child treated for three years in a Taylor spinal brace. But the frame and jacket are always good, can readily be used by most practitioners, and are not expensive.

In conclusion the following general summary may be made.

1^o Cases seen before the stage of deformity should never be allowed to develop deformity.

2^o Deformities in the acute or subacute stage can be reduced one-half or entirely.

3^o Children under three years are best treated on the bent gas pipe frame.

4^o Cases over three years are best treated by the application of a *solid* plaster of Paris jacket.

5^o Perfect technique and careful attention to little details are absolutely essential.

92 State St.

TRACHEOTOMY FOR GUNSHOT WOUNDS OF THE TRACHEA.

BY J. MCFADDEN GASTON, A.M. M.D., ATLANTA, GA.

In discussing the subject of gunshot wounds of the trachea, we are aware that we have to deal with a wide range of injuries, with the complications that may occur from septic infection or laryngeal stenosis. This class of cases is very considerable source of death. Even in small wounds a laryngeal stenosis or defective voice, if not a fistula, may occasion trouble. As treatment needs to be prompt and well directed to the case, the prognosis is often serious when a gunshot wound occurs.

As to the secondary diseases following tracheotomy, secondary hemorrhages have been known to take place during the after treatment. Erosion of the innominate artery from pressure of the tracheal tube has been attributed to low tracheotomy or suppuration by Korte-Guadisher, Maas and others. Fatal secondary hemorrhages have originated in the lungs.

In the final process of repair, we find granulations, which by their presence and position occasion trouble. They may be in the tracheal wound itself or in the margins of the trachea, where the tube has abraded a sufficient amount of mucous membrane to stimulate their growth.

This may occur where the curve of the tube presses upon the posterior wall of the trachea and in cases of phonation tubes which contain an aperture. The margins of this aperture should be very smooth or they will occasion this trouble. A valve-like enclosure of the trachea by granulations has frequently given rise to asphyxia when the tube was needed to prevent eminent death. A sharp spoon or the galvano-cautery may be applied to such granulations and their destruction accomplished, when it is not thought best to remove them by a pair of scissors with forceps. In such cases, a continual source of inconvenience is blood which has been known to cause instant death when inhaled into the lungs. Although in cases of diphtheria, the tube is often removed in a few days, and the wound from tracheotomy heals kindly, there is cause for a greater delay for prudence-sake in gunshot wounds where stenosis has occurred from oedematous laryngitis.

N. T. (female) aged 8, with a history of good health, except a few of the diseases of childhood, was shot through the neck and right shoulder, July 3, 1904. The wound of entrance and of the exit of a ball from a 38 calibre pistol, was in a line with the larynx, while the wound in the shoulder was in the line of the acromion process, and the exit ranged somewhat backward of the scapula. In the course of the bullet a shot of this kind would probably traverse the trachea and the soft parts of the neck, and also the shoulder joint, involving the capsule.

Her condition was quite serious, due to hemorrhages and obstruction of the larynx from oedema. The wounds

were dressed by Dr. J. N. Brawner, who saw her soon after the wound was received. A swab of bichloride gauze was used to disinfect the tract of the bullet. The family physician, Dr. J. W. Carmichael, was also called and assumed charge of the case. The disease known as oedema of the glottis was supervening, when I was called in July 4th, with the request to be prepared to do tracheotomy.

In many respects this case is unique and needs no apology for claiming the valuable time of this Association. S. D. Gross has called tracheotomy the dread of surgeons, and explained to us that while laryngotomy is easy and safe, that tracheotomy is far from being so. He has also warned the student of surgery against the cases of children where the neck is short and fat. While surgeons are familiar with the anatomy of the neck and with the technique of tracheotomy in the cases of obstruction from foreign bodies and from the tumors of the larynx and inflammatory products of diphtheria, it is rare for a gunshot wound to occasion this operation. Such wounds in children are particularly uncommon, and in little girls almost unheard of, from the fact that they are usually protected therefrom.

The object of the man who shot this little girl was to convince some tramps that he was prepared to shoot. The tramps were in a coal-car and had already given trouble on the way to the city. The circumstances are such that a surgeon should consider, as they have given rise to a damage suit for \$20,000 (twenty thousand dollars) against the railroad company, and the imprisonment of the man. In this case the little girl was standing up on a gate in her parents back yard to see the approaching freight train which comes by in a cut in the road below, when she was shot in the manner described. The flagman or conductor of the freight train was standing on

the top of the box car and discharged a pistol shot, which took effect in the little girls neck. His connection with the case was that of an agent of the road in the discharge of his duty.

The symptoms presented were dyspnea and distress and a decision upon operation was based upon the necessity for drainage and an open wound, although no rise in temperature or chill betokened a septic infection.

In this case the physicians in attendance, Drs. J. W. Carmicheel J. N. Brawner, H. M. Clarke, and myself met at the house of the child at Howell station, a few miles from Atlanta, to perform the operation. Our idea was to incise as for tracheotomy and judge of the necessity for an incision into the windpipe from the character of the wound in it. A thorough preparation of the field of operation was first made, and a considerable time before the operation, a hypodermic of 1/16 grain of morphine and 1/600 grain of strophine sulphate was injected. Chloroform was administered by Dr. Carmichael. The patient being in a position of extreme extension of the neck and the head hanging over the edge of a table, enabled the operator to make an incision in the middle of the anterior portion of the neck. The wound was sponged with adrenalin chloride solution, with a normal saline solution and was comparatively free from blood.

The necessity for haste in the steps of the operation became apparent when the region of the trachea was reached and probably some blood may have entered the gunshot wound in the windpipe. A violent asphyxia left no room for doubt and no time for indecision; and the string that had been tied in the muscles was lifted so as to expose the glistening white trachea, which seemed to be about the calibre of lead pencil. A thrust of the knife and a tube following its opening in the trachea were the steps of the operation done in the emergency. The

time taken was less than for describing this part. The seizure of the patient by the feet and the suspension of the body of the child, led to a resuscitation. The patient was allowed to regain consciousness and to breathe before the completion of the dressing. No sutures were placed in the trachea, and only a silk suture in the hyoid muscles served to keep the patient's trachea in position of ready access in case of danger to her suffocation should the tube be disturb or dislodged in coughing.

The position of the incision into the trachea was lateral rather than on the anterior surface of the windpipe. The condition of defection from the normal position of the trachea made it extremely difficult to reach, so that more than one attempt was necessary in order to reach the trachea. In a child the trachea is quite deeply situated. An extra gush of blood is apt to occur, especially when the blood vessels are already congested. The child was very weak and yet regained her strength sufficiently to be able to leave her bed in her efforts to be comfortable.

A trained nurse, Miss Alva Garner, was detailed from the Tabernacle Infirmary, and had constant oversight over this patient for nearly four months. She learned to take out the inner tube, cleanse and replace it, and to manage the child in a gentle but firm manner.

The child's temperature was as high as 103 when she was suffering with the Bronchitis, incident to the injury to the trachea.

After the operation, a prescription adapted to the bronchorrhea was as follows ; " Camphorated Tincture of Opium, 1 dracm, Carbonate of Ammonia, 1 drachm, Oil of Turpentine, 1 drachm, Camphor water, two ounces, Mucilage of Acacia sufficient for six ounces. M. Sig. Take a teaspoonful every three hours."

Her respiration at 8 p.m. on July 4th, the day of the operation, was 30; pulse 130, temperature 102-3-5. She was breathing quietly and was able to drink a small amount of water without nausea. She was breathing quietly and slept short naps later when I visited her. I was importuned to let her have some water, which being drunk, was returned clear by the stomach. As she became quite restless in the midnight hour, she was given ten drops of paregoric with good effect, perspiring and resting well after 1.30 a.m.

The usual medicines which avail for bronchitis were kept up; antiseptic dressings were used while the nurse was given instructions as to the manner of removing the inner tube in order to cleanse it of mucus, which being of a doughy consistence often obstructed the lumen of the tube. On one occasion particularly, it became necessary to do this; and frequently afterwards, as the obstruction to air was complete, and the nurse reported the viscid condition of the mucus to be such that a stick was inserted in the tube before a dislodgement was effected. The patient responded well to the treatment. On the 9th of July, only five days after the operation, she was considered on safe ground. A photograph was taken on the tenth day, when she was able to be out on the porch. The weather was warm and dry, greatly facilitating her respiration through the tube. About a month after the large photograph was taken, another likeness of the little patient was secured, and appears as evidence of her continued use of the tube without serious inconvenience. There were spasmodic coughs when the inner tube was removed, generally relieved by a little water. The mucus was examined by Dr. Ephraim Smith, August 22; 1904, and no pathogenic bacteria were found microscopically. The tube was removed three times daily for thorough sterilization. The nurse was allowed to leave the patient for some hours.

and no ill results were feared. On the whole, the patient continued cheerful and happy. Her condition of health was improved with tonics, and in order to secure a closure of the opening made by the operation before cold weather set in, it was thought best to remove the tube. On the 19th September, we had intended to test the matter of her ability to breathe by the ordinary channel, and if the air passages seemed to permit, to have her dispense with the tube, and we secured the services of another trained nurse in the absence of the one who had been so satisfactory, but had been obliged to return to the Tabernacle Infirmary. Dr. Carmichael gave the anesthetic,—pure chloroform, and the patient breathed very well with the swab applied to the mouth of the tracheotomy tube.

During the application of anesthetic in this way it was necessary to remove the tube when the breathing was not so satisfactory, and the only explanation of a violent cough was that adhesion may have been somewhat broken and a drop of blood allowed to enter the trachea. Her violent efforts to remove this blood were effectual and portions of mucous and blood were expelled with force sufficient to reach the glasses worn by me; and to force me to replace the tube, which fortunately allowed the air free access to the trachea and respiration was resumed. As this was done so readily, it was obvious that the tube could be removed and replaced without trouble by the nurse. This was due to the adhesions that had taken place between the edges of the wound in the trachea and the external wound. The condition of the parts was very favorable to granulations, which were expected to fill up the opening. In order to test the matter again, our patient was replaced under chloroform again, and it was under more favorable circumstances. She was at the tabernacle Infirmary where her general condition could be looked after more fully so that at any moment the tube

could be replaced by a nurse. The result showed this to be unnecessary, but at the same time, the indications were that it would be needed.

On September 22, 1904, the tube was removed, and the patient breathed without great difficulty even through the wound. When this was held together loosely by the fingers, her breathing was shown to be through the natural channels. She had been thoroughly anesthetized in order to have no excitement and the ordinary natural breathing would be possible.

With a child, habit is a secondary nature indeed, and with this child, breathing through the tube nearly three months was fast becoming her mode of breathing.

Reasoning that any interference with this would occasion some involuntary struggle, we sought to remove all the reflexes.

Her power to resume her normal mode of respiration was assured when a piece of gauze was arranged in the form of a cone, and she was allowed to breathe with the external wound closed in this manner, holding it in position at first and afterwards using adhesive strips to retain the gauze. The gauze was carried to the edge of the tracheal wound, and fixed here. Then the whole neck was encircled with the gauze bandages.

When the girl awaked, she was with her nurse, but cried and sobbed audibly, as she had not been able to do before. Her recovery afterward was uneventful, no disturbance of the inner gauze plug was permitted until she was in a better position to breathe with no interference from without the trachea.

As soon as the tracheal wound itself could be closed, she would be on safe ground from the source. Granulations from the bottom so crowded the orifice in which

the gauze cone was situated, that she was allowed a short respite from dressings to have perfect rest to the tissues. Permanganate of Potash Solution. 1/1000 was applied before anything was done to the internal ones. No medicine save those she had been taking were required. She gave no trouble to the nurses except when a dressing was needed. Her health was such that she walked about the Infirmary and assisted the nurses. Her voice regained all its childish tones and she left the Infirmary October 16th, less than a month after she entered, with perfect cicatrix and no fistula.

I wish to draw special attention to the position of the incision as it differs materially from any tracheotomy I have seen described. I believe it is an improvement so far as the use of a tube as commonly made goes. As has been said, the tube frequently presses with a great deal of force upon the posterior walls of the trachea, and at times this pressure has also extended to the anterior walls of the oesophagus thus interfering seriously with the deglutition. In this respect, no pressure was made which could have inconvenienced the patient, as she could swallow both liquids and solids.

THE COMPLEMENTAL RELATIONS

OF GLYCOSURIC AND ETHEREAL SULPHURIC ACIDS AND
THEIR PAIRINGS IN AUTO-INTOXICATION, TYPHOID
FEVER AND CANCER.

A. E. AUSTIN, M.D. AND E. W. BARRON, M.D. BOSTON.

Among urines which reduce Fehling's solution, but which do not contain sugar, are found those which contain large amounts of uric acid, and those which contain glycorunates. The urine which contains the latter can be readily distinguished by the following characteristics:—

It reduces Fehling's solution slowly requiring nearly five minutes for its reduction and does not contain the usual red suboxide of copper, but a greenish-yellow product which may be hydrated suboxide. Such a urine has a left-turning power in the polariscope and does not ferment. Its reducing power is greater than its turning power and it gives the Tollens reaction with phloroglucin.

This substance, glycosuric acid, has never been found free by any one except Paul Mayer. He claims that when 20 grammes, at least, be injected into a rabbit, the urine contains a right turning substance which reduces, and

does not ferment and upon this bases his opinion that the free acid may be eliminated. Ordinarily, however, we find this acid induced either by the ingestion of some aromatic substance, which, by pairing with the glycosuric acid, prevents it from further oxidation, or by the ordinary aromatic bodies produced in the intestines. These artificial pairing substances may be camphor, chloral, thymol, borneol, antifebrin, or morphine, and innumerable others, the recounting of which would not add to the interest of the subjects and would only show a reduplication, of the principal ones already given. Ordinarily the pairing bodies which are found in the urine are such substances as are formed in the intestine. indoxyl, skatoxyl, phenol, cresol, etc., the products of albuminous decomposition. To such an extent are these present, even under normal conditions, that Mayer and Neuberg; by using enormous quantities, at least 50 litres of normal urine, have been able to show that 40 mgms of glycosuric acid per litre is present.

Of these, only the indoxyl produces a reducing agent, while the phenol compound does not reduce.

As to the source of glycosuric acid, two theories have been advanced: first, that it comes from the oxidation of dextrose which is not carried to its farthest limit, carbon dioxide, and which, presumably from the greater difficulty of oxidation of a paired glycosurate, is held at that stage of the process. This theory is the one maintained by Mayer, who bases his opinion upon the following grounds: That when the rabbit has been made glycogen-free by starvation and camphor is given, only a small portion of glycosuric acid can be found in the urine, but if, at the same time, dextrose be given freely, this acid is very largely increased. On the other hand, it is not impossible that this acid may be produced from the glycoproteid, or even from ordinary serum-albumin, that is, from the carbohydrate portion which almost every urine

contains. Leowi attempts to demonstrate this by producing phloridzin diabetes in a dog, and by giving camphor, on the principle that if the glycosuric acid is formed from the dextrose, there will be an increase in the glycosuric and a corresponding diminution in the amount of dextrose eliminated. He found, however, that while the glycosurate was present in fairly large amounts, there was no decrease in the amount of glucose, and from this he concludes that the acid comes from albumen. A case under my own observation proves the same. A young man passed, on several days, approximately 5,000 C. C. of urine, which usually contained 5% of dextrose. His food during the entire period consisted of beef, veal, lettuce, spinach, three to four eggs: ham and one roll daily, weighing 30 grammes. On one day on which these observations were made, the amount of urine was 4,680 C.C. The polariscopic reading showed 4.5% of dextrose, while the reduction showed 5.2%. After complete fermentation the urine was markedly laevogyre and there was isolated from this 2.456 grammes of a glycosurate. Here we can only conclude that not only the greater part of the dextrose, but also the glycosurate, must have come either from the albumen taken, or from the man's own tissues.

The place in which this acid is formed is still in doubt, we have the experiments of Glaessner and Embden to show that phenol sulphate, an analogous body, is formed in the liver and presumably the glycosurate is formed in same organ. But it has been shown that when the liver is largely destroyed by arsenuretted hydrogen the formation of glycosuric acid in a normal amount still continues.

Furthermore, it has been shown that in injuries to muscles, through fractured bones or bruises, there is a glycosuria produced which may be accompanied, presumably, by the glycosurates, but we are still lacking actual evidence of this accompaniment.

Mayer further shows that glycosuric acid may come from a faulty oxidation caused by dyspnoea, and has actually found this substance, as he claims, largely increased both by tying pharynx in animals, and also in cases of asthma. Wohlgemuth has also adduced an interesting example of this in dyspnoea from cocaine poisoning in which this acid was so largely increased that he was able to isolate in crystalline form a large amount of cresol glycosurates. Another interesting fact with reference to this case was the fact that sometimes one, sometimes the other, sometimes both, occur under certain conditions, like poisoning with morphine, chloral, etc. Carbon monoxide produces, also, as is well known from accidental poisonings with water gas, a glycosuria of long standing, but no efforts have as yet been made to determine whether the Glycosurates are increased under these conditions.

We now come to another body which seems to have analogous relation to aromatic bodies, that is, sulphuric acid, as you well know, exists in two forms, united with such bases as sodium and potash, or is paired with as great a multitudes of aromatic bodies as glycosuric acid has been found pair with. They both has the power, apparently, of rendering innocuous many poisonous substances, such as phenol, morphine, etc., and when a certain amount of any of these poisonous substances is given it unites itself to both.

Naturally, the following questions then arise :—Why does not all the aromatic body pair with the sulphuric acid ? or does it do this to the exclusion of the so-called preformed sulphate and the excess only, unite with glycosuric ? or is the latter fully saturated, and does the excess only, unite with the sulphuric ? In the last case, necessarily, the glycosuric acid must be increased at the expense of the ethereal sulphate. In the first case the

sulphur must exist only in the form of ethereal sulphate, without reference to glycosurate. And last, the question arises,—if such bodies pair with both, what proportion pairs with each acid.?

Three classes of cases were taken in order to illustrate this very interesting problem. The first class included cases of auto-intoxication, in which there is noted an increase of indol and skatol, either from intestinal obstruction or from accumulation of pus.

The second class includes typhoid fever, with temperatures usually of 39.2. C., on a milk diet, where, according to authorities, the oxidation of glucose is always very limited.

The third class includes one case of cancer of the liver where indol has always been shown to be increased. Such cases also offer a very good opportunity to determine whether an increase in glycosuric acid is necessarily associated with an increase in the pairing body, and whether, when the pairing body is present in normal amount, it may have a greater affinity for glycosuric than for sulphuric acid.

The urines of all these were first freed from the glycosurates, then the remainder used for separating the ethereal sulphate in one portion and the preformed sulphur in another. The glycosurates and the ethereal sulphates were split, and all four of these factors were quantitatively estimated. The results were very curious. In the first group, in 66% of the cases less indoxyl united with the glycosuric acid than with the sulphuric, while in the remaining cases the reverse was true. There was always a surplus of sulphuric acid in the form of preformed sulphates, though this amount was very much diminished in the first group, with reference to the second, amounting to only one-fourth as much.

In the typhoid fever, or second group, there was in 50% of the cases, more indoxyl united to glycuronic acid than to sulphuric acid and, in 50% the reverse was true.

There was also an enormous amount of performed sulphate, amounting often to 70% of the total sulphuric acid present.

In the cancer of the liver, the greater part of the indoxyl was united to sulphuric acid. In no case was the glycuronate formed, apparently, at the expense of the ethereal sulphate, and in no case was all the sulphur used up in the production of the latter. In typhoid fever and cancer the very large amount of sulphuric acid is probably accounted for by the rapid breaking down of the albuminous tissue of the body, whereby sulphur is set free. It is very plainly evident that the glycuronic acid is first saturated and the excess of the aromatic body unites with the sulphuric. Hence, it seems safe to conclude that the formation of the glycuronate is due to the presence of the pairing body and not to deficiency of oxidation. The increase of the glycuronate is apparently not necessarily due to the increase of the pairing body, and why there should be more glycuronic acid available under certain circumstances than under certain circumstances than under others still remains a problem.

Since the discovery by Salkowski that there exists in the liver an enzyme which he calls oxydase, my suggestion is that possibly the daising body unites only with that dextrose which oxydised in the liver, leaving the vastly larger part of the carbohydrates which exist in the muscles, to be oxydised to the higher products, oxalic acid and carbon dioxide.

Mayer offers in explanation, the theory that only a portion of the dextrose passes through the stage of glycuronic acid, offering no explanation for the greater or less

amount, unless it be his supposed diminished oxidation, a fact that is not yet fully established.

Mayer also found that when glycuronic acid was injected into a rabbit, oxalic acid was found in much larger amounts than in the normal rabbit. From this he draws the conclusion that there is a progressive stage of oxidation in the body, from dextrose to the final carbon dioxide. He found, further, that when glycuronic acid was mixed with macerated liver substance a corresponding increase of oxalic took place. But this, however, does not necessarily follow; because one of the authors of this paper has shown that oxalic acid may also arise from glycol, which naturally is also extremely abundant in the liver. Had Mayer shown a diminution in the glycuronic acid thus employed, the evidence would be much more positive. There is, however, as shown by others and observed by the author, a marked association in diabetes, of dextrose, glycuronic, and oxalic acids, in the urine. This is particularly true in those cases in which the glycosuria is due to the inability of the liver cells to convert dextrose to glycogen, and we may conclude that the liver certainly has something to do with this formation of glycuronic acid.

To return to the result of the experiments, we may remark that skatoxyl was never separated from indoxyl and where the latter is mentioned both are included.

In group 1, we find that the first case contained three times as much indoxyl as the third, and nearly one-half as much glycuronic acid.

In the second group, 2 and 3 contained twice as much indoxyl as the others, and respectively four and three times as much glycuronic acid, while both contained less of the latter than the 4th. Hence it is evident that glycuronic acid is not increased in proportion to the increase of indoxyl.

Another fact to which reference has been made is, that the limit of sugar absorption is very much impaired in fever. It has been demonstrated by Strauss that if 100 grammes of dextrose be given a fever patient, a large percentage of the same is eliminated in the urine. From this we naturally infer that when several cases, both of fever and other pathological conditions, are compared, the amount of glycuronic acid would be much larger in the fever cases than in the others, if it were due to fatty oxidation. Here we find, however, that the largest amount of this acid, .18% of 1% in typhoid fever, does not much exceed the largest amount, .11 of 1%, found in autointoxication, while the amount found in the case of cancer exceeded all these highest amounts.

Blumenthal and Wolf, upon examining the urine of typhoid fever, also came to the conclusion that there was no relation between the height of fever and the amount of glycuronic acid, or between the amount of aromatic bodies and the latter.

Our own experience has shown, further, that there was not enough of the aromatic body to satisfy the demands of the glycuronic acid found. We must conclude then, that there are other unknown pairings, or that there may be a combination of this acid and urea, but of these combinations very little is yet known.

Our experience also conforms closely to that of Bial, that some glycuronates are much more readily split than others, which may be further evidence of the presence of these unknown pairing substances. For instance, in the case of diabetes to which reference has already been made, cooking the glycuronate 10 hours with 2% sulphuric acid in the autoclave with a pressure of 5 atmospheres and a temperature of 140, the splitting was not complete, and 14% of, the total remained unseparated. This is remarkable, because ordinarily indoxyl and phenol can be readily

split off from the acid with mere cooking during a period of two hours with 1% sulphuric acid.

To briefly capitulate the results of these experiments, we may say:—First, that aromatic bodies unite both with ethereal sulphuric acid and glycuronic acid, which apparently have a complementary relation to each other, but that the former is always first saturated before union commences with the second. The glycuronic acid apparently varies very decidedly in amount, due to causes of which we have, at present, no exact knowledge, but it is not necessarily associated with the increase of the pairing body, or with diminution of oxidation. Furthermore, there always present an excess of sulphuric acid beyond the demands of the pairing body.

CHAPTER XXI.

PROGNOSIS IN HEART DISEASE

BY THOMAS E. SATTERTHWAITE M.D.

The forecast in heart diseases involves many considerations, and is therefore beset with uncertainties. Age, sex, station in life, habits and occupation, the variety of the disease, its benign, malignant, functional or organic character, its location extent and duration, complications and accidents the constitutional diseases with which it is associated, the presence or absence of compensation, and intelligent management or otherwise are governing factors in the expectation of life.

In infants under one year the outlook is particularly unfavourable. During childhood it is worse than in adult life. Children with serious valvular diseases before eight, seldom reach adult life, As they approach puberty, heart weakness is apt to set in. Holt found that in 225 cases of congenital heart disease, 60% were fatal before the end of the fifth. year, and one-half during the first two months; 16% however of the cases lived over 16 years and 8% over

30 years. Serious valvular lesions in children progress more quickly than in adults. Owing to their rapid growth, and the demands made on their strength cardiac dilatation occurs early. Acute diseases still further increase the danger to life. (Dis. of Infancy, New York, 1902).

But the danger, is not immediate. In fact, both acute and chronic endocarditis in children are rarely of themselves fatal death being due to associated conditions, such as pneumonia or pleurisy.

So we see how it is that the first years of life are especially dangerous for children with heart disease. However, according to Koplik. (Dis. of Infancy, N. Y. 1902) in mild forms of heart disease in children recovery is to be expected, but the outlook in rheumatic patients is especially unfavorable for they are apt to succumb within a few years after the first attack.

Women have a better expectation of life than men, because their lives are on the whole less strenuous and more orderly, though during pregnancy and parturition they run great risks; in the one case from the upward pressure of the abdominal organs, and in the other from the severe efforts of expulsion, with resulting cardiac strain, due to the suddenly altered circulation. Heart failure cause death under any of these circumstances. In pregnant women however the greatest distension and pressure is forwards rather than upwards. Though instrumental labor under anaesthetics is frequently resorted to, the treatment of heart complications is better understood. According to Edgar, if the disease is valvular and there is compensation, the danger to life is small, and need not be taken seriously, though artificial labor may sometimes be necessary. Mitral stenosis is much dreaded by obstetricians. If death does not result, there may be placental apoplexy or abortion. Nitrous oxide or ether are the preferable anaesthetics. During pregnancy and after

child birth strychnia is sometimes given digitalis rarely. Uncompensated endocarditis is unfavourable for mother and child.

For men whose occupations call for continuous or violent physical strain, exposure to inclement weather, especially if they take stimulants in the place of proper food, the prognosis is as a rule unfavorable. And yet among men or women who live regular lives, free from its ordinary vicissitudes, a fright or mental strain, overeating, the immoderate use of tobacco, or indeed any sudden tax on the system may cause a fatal result. In very old people a rather common cause of sudden death from heart disease, is the eating of indigestible food, or more than can be digested.

From the gradually accumulating facts about heart diseases, we are getting more definite views as to the expectation of life, and from the increasing care with which post mortems are made in our public institutions, we may expect still greater definiteness in the future. Thus far however we are still deficient in data for making accurate estimates, so that our forecasts are necessarily vague. And yet a certain number of facts governing the expectation of life are known.

It is generally admitted that funtional diseases of the heart do not much affect longevity, though they certainly make the organ more susceptible to disease, while the malignant forms, whether due to new growths or infective endocarditis or carditis are pretty generally fatal. Certainly $\frac{2}{3}$ of the recorded cases of malignant endocarditis have proved fatal.

On the whole, however, myocardial diseases are less dangerous to life than the endocardial. Certainly myocardial degenerations due to the continued fevers, like typhoid and dihptheria will in the great majority of cases

disappear after convalescence, and reasoning by analogy, degenerative changes due to other cause should yield under appropriate treatment. Certainly the fat heart of corpulence will greatly improve under the intelligent application of reduction methods.

But at the same time *sudden death* occurs more frequently in myocardial disease than is generally supposed. Persons with very fatty hearts will sometimes die as if from an apoplectic stroke. The cause may be acute dilatation or embolism due to thrombi detached from the chambers of the heart in some cases rapture or they may die more gradually from extrinsic causes, such as pneumonia, or gastro-intestinal distention, more generally however from affections of internal organs, in which the lungs, kidneys, liver, play the most important roles and indeed are the terminal affections.

In myocardial diseases, where there is arteriosclerosis, or in degeneration of the heart walls where there is a persistently feeble pulse, especially with difference in the radials, the danger line is always near at hand.

Mitral obstruction is more serious than insufficiency.

Mitral stenosis if severe means that the mitral disease is well established. Moreover embolism may occur as often as 20% in mitral stenosis, in my experience. In Hayden's 15 cases, death was at an average age of 29.26 years. In Broadbent's 53 cases of mitral stenosis it was 33 years for males and 37.38 for females. Samways (Brit. Med. Jour. Feb. 5 1898) in 196 cases taken from the records of Guy's Hospital found the average age at death for males was 38. $\frac{1}{3}$ years and for females the same but in severer stenosis the average age was 33.6 years, in the milder 43.6. In 42 fatal cases by Fagge the average age was 37.83. (Hayden, Dis. of the heart, Dublin, 1875.) In one-third of them however there was complication with other valves. According to my personal statistics in one

series of 19 cases death most frequently took place between 37 and 38, but as the extremes in these cases varied from 23 to 70 and the mean age was found to be 3.29. By reference however to page of this manual the average age at death of Dyce Duckworth's cases, 264 in number, (not all however supported by post mortem evidence) was 33. In a first series of 100 collected cases. I found the average age 35, in a second series 33, Sanson found it 32.7. In another series of 57 fatal cases, ranging from 13 to 67, 26 or 45. % fell between the ages of 30 to 40 inclusive. The expectation of death is therefore in the third decade, and so far as we know at present at about the age of 34.

I have however under observation a patient of 73, with typical signs of mitral stenosis including the purring thrill.

In mitral stenosis sudden death is as *rare* comparatively as it is frequent in aortic insufficiency. In five of my cases it was said that the disease has lasted anywhere from three to thirty years.

Aortic insufficiency is certainly one of the most dangerous of valvular diseases, but at the same time it is less so in the absence of arteriosclerosis or angina; or where there is little displacement, and the contour of the heart is not much altered.

Whether it is more grave than aortic stenosis has been questioned. In 50 of my cases the averages of age at death was 40 against 41.7 for aortic stenosis, but the stenosis, was for the most part complicated with other valvular affections.

Pure aortic stenosis has a more favorable outlook. Comparatively few cases have been recorded however. In 8 of which I have records the average age at death was 56, two reaching the age of 70 and one 90. In Hayden's

26 aortic cases 50% were combined with insufficiency. I make it 65%. Fagge says and I think with truth that in combined aortic stenosis and insufficiency the prognosis is governed by the insufficiency. Judging by my figures aortic stenosis in complicated cases is almost as serious as incompetency but much less so in uncomplicated cases. In aortic obstruction however, arteriosclerosis must always be regarded as an unfavorable sign.

But the prognosis depends largely on the grade of obstructions if little the prognosis is comparatively speaking, not bad. Broadbent found the average age at death 40 years, while his oldest case was 53. He thinks aortic stenosis less serious than aortic insufficiency or mitral stenosis, in which I agree with him on the whole. However *Sudden death* in my experience is as common in aortic stenosis as in incompetency. In both I found it 20% Hayden made it 18% in all in all forms of aortic disease.

Mitral insufficiency is compatible with a long life. This is now the accepted opinion. Indeed in uncomplicated mitral insufficiency the outlook is better than in any other form of valvular disease. The relative form is quite common after physical exercise, in recovery from fevers and in neurotic disturbances. Most athletics suffer from it at some time or other, but it usually disappears when the strain is past. On the other hand, it may be a fixture in some, as in laboring men, if there is continuous and hard strain. But simple mitral insufficiency acquired in early life appears to yield more easily to compensatory hypertrophy than any form of aortic disease.

In the organic variety it is apt to be complicated with other valvular diseases. My figures show this complication in 86%. Moreover I believe that mitral stenosis is preceded by mitral insufficiency. I am not sure that it ever causes death of itself. In fact, in a record of 102

fatal cases of heart disease. I have not found a single instance of organic uncomplicated mitral insufficiency that caused death.

To my mind therefore the comparatively harmless character of uncomplicated mitral insufficiency is established. The great danger however is that mitral stenosis, the most dangerous of the common valve lesions, will be mistaken for mitral insufficiency, the least dangerous. This error is often made, as my hospital records show.

In congenital pulmonary insufficiency the prognosis is never good, but in acquired disease I have known of one instance in which the patient reached the age of 70

In congenital pulmonary obstruction, (stenosis), the majority die before the fourth year and of tuberculosis, but the age of forty has been reached. Acquired obstruction has a more favorable outlook. Owing to the position of the valve it is apt to be compressed by external influences, such as adhesions. Of my four cases one lived to be 56, and in 15 of my collected cases 42.8 was the average of age at death. One patient (Schwalbe's) lived to be 84. But these cases are too few for statistical inquiry. Pulmonary obstruction is the point about which all congenital cardiac anomalies center, and which independent of the pulmonary lesion, are incompatible with a long life. Tricuspid obstruction is for the most part an acquired disease. It is very rarely congenital, and then is soon fatal. It is in fact the most dangerous of all valvular diseases. Usually it is in the train of organic valvular diseases and the best of them.

Patients rarely reach 40, but one of Lendet's cases lived to be 64. Exceptionally old age men reach old age. One case I have reported the patient lived to be 70. Samways in 196 cases of valvular disease found 32 of tricuspid stenosis, so

that it is not extremely rare. The prognosis depends largely upon the condition in life. It is more dangerous in women than in men and in the laboring class than in those whose circumstances are easy.

In tricuspid insufficiency the prognosis is bad, it is secondary to lung disease or some other valvular affection. It is apt then to be a terminal affection. It may however be a temporary affair, and of little account. If however it persists, the significance is very grave. The order of gravity as given by Wilks, Peacock, Bristowe Fagge and Pye-Smith is

1. Aortic regurgitation.
2. Mitral regurgitation
3. Mitral stenosis.
4. Aortic obstruction.

As given by Green, (Medical Examination for Life Ins. 1900) it is

1. Aortic regurgitation.
2. Mitral stenosis.
3. Aortic stenosis.
4. Mitral regurgitation.

But Walshe made the order

1. Tricuspid regurgitation.
2. Mitral regurgitation.
3. Mitral stenosis.
4. Aortic incompetence.
5. Pulmonary constriction.
6. Aortic constriction.

On the other hand Broadbent and Leyden have it

1. Aortic incompetence.
2. Mitral stenosis.
3. Aortic stenosis.
4. Mitral regurgitation.

In the statements and figures just given however if

is apparent that if we are to judge of the gravity of the disease by the average age at death, the order should be as follows in the four conditions named.

1. Mitral stenosis.
2. Aortic insufficiency.
3. Aortic stenosis.
4. Mitral insufficiency.

This order of gravity often obtains according to Broadbent in childhood and early adolescence. My statistics however are drawn almost entirely from adult cases and I believe from a larger series of post mortem cases than have as yet been utilized in the solution of cardiac problems.

Certain other matters bear on the prognosis. For example it is to be remembered that the intensity of a murmur does not indicate the gravity or extent of the inflammatory process. Well defined murmurs that come and go are apt to belong to loose vegetations and are therefore alarming. Musical murmurs attended with fever always give an unfavorable prognosis

They are likely to be caused by rupture or ulceration of a valve. Loud murmurs suggest a large opening. The change from a loud to a soft murmur however, is apt to indicate commencing heart failure. Diastolic murmurs are the most dangerous. The Cheyne-Stokes or Adam-Stokes signs are significant of cerebral implication, and though they may disappear in rare cases, they point to eventual danger from cerebral disease.

Recurring attacks of inflammatory rheumatism make the outlook unfavorable. In any form of endocarditis, a sharp attack of pneumonia or even any prolonged illness that wastes the vital forces may cause heart failure.

In the main however, in valvular disease the prognosis hangs on efficient or non-efficient compensation. If the apex beat is in about the normal position, the rhythm regular, the action of the heart good, and there is no considerable increase in the transverse dulness, auscultatory phenomena are of subordinate importance.

In fact, as long as compensation is maintained in these cases there is no immediate danger of *sudden death*, unless from embolism, and it may occur at any time. But the embolus may not reach a point of vital importance. It may lodge in the liver or lungs without doing much harm. If in the medulla or pons, it will probably cause immediate death. I have seen a case where a clot lodged in the pons and caused instantaneous death. If however, it is lodged in a "silent center," it may do no harm. Diseases of the right side of the heart are more immediately dangerous because they tend to produce more pulmonary congestion, which in turn leads to a greater exudation of fluid and its attendant consequences. It is commonly believed that the oedema of the extremities and ascites seen in the last stages of cardiac disease are due to congestion of the kidneys. This seems to be true in most cases, but the liver and spleen are *almost* as often involved. Enlargement of the liver is usual in old heart cases and the hob-nail form of cirrhosis is not uncommon.

In compensatory hypertrophies the right ventricle fails as a rule earlier than the left. Hypertrophy compensates for a variable period, dependent chiefly on the extent of the disease in the valve or valves affected. It was at one time computed that the expectation of life in ordinary cases is from two to four years after compensation has failed. The expectation of life in cardiac diseases however, has been greatly improved by a closer attention to diagnosis, a more discriminate use of drugs, and a recognition of the success obtained by mechanical

methods. Whether or not the claim made by the advocates of the Nauheim system that it adds an average of ten years to life, is true, it is an interesting problem and worthy of close statistical inquiry.

YELLOW FEVER IN MEXICO

PAPER READ IN THE MEETING OF THE AMERICAN PUBLIC
HEALTH ASSOCIATION HELD IN HAVANA,— CUBA
BY DR. EDUARDO LICEAGA, PRESIDENT OF THE
SUPREME BOARD OF HEALTH OF MEXICO.

Ever since the year 1893, I have imposed on myself the duty of presenting every year, a report on the course followed by Yellow Fever in the Mexican Republic, and I now come to give an account of the epidemic that raged during the past year and of the cases that have been observed during the present year in different parts of the Isthmus of Tehuantepec, in Mérida and in Vera Cruz, after which I will present a brief summary of the measures adopted during the past year to stamp out the epidemic and those that have since been carried out in order to finally rid our territory of this disease.

I

In order to carry out intentions with regard to the first point, I have the honor to present the diagrams which

represent the cases observed and mortality through Yellow Fever in the different points where the epidemic prevailed during the past year. I must first state that these diagrams do not represent the exact number of cases, because in this epidemic as in any other disease that attacks the people in general, the first cases pass unobserved. As regards the mortality, it is probable that the diagrams approached nearer to the truth, because no burials can be made without the permission of the Civil Registrar of each locality and although some of the fatal cases may be hidden through ignorance or malice, their number is very small and exercises no perceptible influence on the aggregate figures.

Another diagram also represents the cases and mortality from Yellow Fever up to the 30th of November last. As a commentary on the former, I must state that it was an entirely exceptional event for the disease to have spread so far from the coast where the original focus of the endemia is found, but on this occasion it followed the road through Tampico Victoria, Linares, Monterrey Nuevo Saredo, (Tamaulipas) and as far as Laredo, Texas, making short incursions to Lampasas and Monclova, outside of the main line which I have indicated, besides which it committed its ravages in the towns and villages near the cities that I have mentioned. From the other focii, Vera Cruz and Mérida, the disease spread to Coatzacoalcos, to a small town called Jáltipam, to Tehuantepec and to Salina Cruz.

Since the close of the past year, it has completely disappeared from Laredo, Tamaulipas, as well as from all the towns above mentioned in the north of the Republic. The epidemic also disappeared from Vera Cruz, and only a few sporadic cases have been observed in the fortress of Ulúa, which is situated a short distance in front of the town. In Mérida there is no epidemic but a few sporadic cases are observed from time to time, and the same thing may be said

of the Isthmus of Tehuantepec, with exception of the village of Texistepec, where an epidemic broke out that is now fairly under control.

With the above statement I believe that I have fulfilled my voluntary engagement, to declare before this meeting, the status of the Yellow Fever in the Mexican Republic.

II

I would very much like to be able to present a detailed report of the efforts, that since the year 1902 have been made in the Mexican Republic to combat the Yellow Fever and to procure its entire disappearance from the country; but such a study would extend this paper too far, and I therefore prefer to relate what was done last year for the purpose of preventing the spread of the epidemic and the measures that have since been adopted and are still being adopted, to obtain the final disappearance of Yellow Fever from our territory.

The doctrine of the transmission of Yellow Fever by means of the mosquito is perfectly known to all present, because it was in the same association that Dr. Reed, the immortal author of the scientific method of demonstrating it by experiments, which will always be remembered in the history of science, first presented it; but I find myself under the necessity of reminding you of the cardinal points of that doctrine, because the sanitary authorities of Mexico have made use of them in planning out their campaign against Yellow Fever.

Before Yellow Fever can exist, it requires a combination of the following three circumstances;

- 1 That there shall be a Yellow Fever patient;

2. That a mosquito of the genus "*Stegomyia*" shall exist, and that one of these mosquitos stings the Yellow Fever patient. and

3. That some non-immune should be stung by the infected mosquito and so be inoculated with the disease.

The problem of the prophylaxis of the disease is therefore reduced to the separation of these three factors. In fact, if there is no Yellow Fever patient, the mosquitos cannot be infected; if there are non-immunes, there is no body left to whom the disease can be transmitted.

As up to the present moment no serum has been discovered to give immunity against Yellow Fever, we cannot convert into immunes, those people who have not already been attacked by the disease. It is therefore impossible in practice to eliminate this factor; but it certainly is within our power to keep up our knowledge of it, and I will explain the methods that we have adopted in Mexico to obtain this result. In every town that has been visited by Yellow Fever, an exact list is made of all the non-immunes, taking their names, sex, age, previous residence, time they have resided in the locality that is already infected, or may be infected, and exact data with regard to their present residence. Having obtained this information, we have established a staff in each locality that daily makes a house to house inspection. Whenever one of these Sanitary Agents discovers that a non-immune presents symptoms of fever, he makes no attempt to investigate the origin of that fever, but immediately isolates the affected person, and this isolation is kept up if the observation shows that it is a case of Yellow Fever, but should it be found to be a case of some other feverish disease, the patient is granted his liberty.

We now come to the other two factors: the Yellow Fever patient and the "stegomyia" mosquito, that is capable of transmitting the disease.

The Yellow Fever patient cannot transmit the disease through his breath, his excreta, the articles of clothing

that he may have soiled or the air that surrounds him: he only becomes dangerous in the event of his being stung by a "stegomya" mosquito, and therefore the method of isolating him only requires that the mosquitos which might sting him should be prevented from doing so. This isolation is carried out by placing the patient in a room whose windows are provided with a wire guaze that is sufficiently close to prevent the passage of any mosquitos, and with double doors, each of which must also be provided with wire guaze, separated by a distance of one metre and arranged in such manner that when the outer door is opened the inner one is necessarily closed, and that in order to open the latter, the outer door must necessarily be closed. This is managed by means of a chain of a fixed length which connects the two doors. A room protected in this manner realizes the ideal isolation of a Yellow Fever patient.

The house to house visits, to which I have already referred, facilitate the discovery from the very first day, of any person suspected of suffering from Yellow Fever. The Agent who discovers a sick man, at once has him carried to the Civil Hospital if he is a poor man, to the Military Hospital if he belong to the Army, and to a special Infirmary, if he is able to pay for his attendance.

We thus find the second problem resolved which consists in the isolation of the Yellow Fever patient.

Let us now study the third point. Before the patient was discovered he may have been stung by a "stegomya" mosquito, but as experience has shown us that these mosquitos continue to live in the house in which they have already stung the patient, it will only be necessary to destroy them within that house to insure their not stinging any person who is non-immune. Experiments have shown us the special method of proceeding in order to destroy

the mosquitos within a dwelling, a railroad or a Pullman car.

The experiments that have been made with the greatest care in the laboratories of the Board, and of which a report will be presented in full detail by Dr. Fernando Lopez, a member of the same Board, have shown us that the combustion of sulphur in certain proportions, infalibly produces death to the mosquito; but it has also introduced into technique of the disinfection, an infalible method for ascertaining whether this operation has really been effective. This infalible method consists in always placing some mosquitos as "witnesses" in the same place in which the disinfection is to be made, at some point where they might be least exposed to the action of the sulphurous vapors. If under these unfavorable conditions, it is found on completing the disinfection, that the mosquitos which have served as "witnesses" have died, there can be no question that all which may have existed in the same room, under more favorable conditions for receiving the sulphurous acid, must also have died.

In a great number of towns and villages of the Republic, and precisely in those where the Yellow Fever spread, the dwelling houses of the poor people, are mere huts that are constructed out of materials which furnish an easy entrance and outlet to the mosquitos and the greater part of them have roofs made of grass or dry branches of some kind. It appeared impossible to disinfect these huts (called in our country "jacales"), but a series of continuous and persevering experiments led Dr. Narciso del Rio to a satisfactory solution of the problem. I must here detain you for a moment whilst I explain the difficulty of finding an effective method.

Experience has taught us that when an apparatus is placed inside of a dwelling for the purpose of burning sulphur, as soon as it begins to throw off the sulphurous acid,

the mosquitos try to find an outlet and direct their flight to any aperture through which light penetrates even though it may be only the lock of a door, and in this way they leave the room or house without having come under the action of the gases that ought to kill them. As the huts I have referred to, inevitably present a great number of openings, the infected mosquitos escape and are thus free to proceed to other parts and to transmit the infection to non-immunes. Dr. del Rio decided to cover these huts so completely that no mosquito could escape and for that purpose he had strips made of a coarse cotton cloth with which he covers the sides of the hut. These strips reach up to the eaves and as the roof slopes and projects over the wall, the strip of cloth follows the shape of the under face of the roof, is prolonged over the upper face up to the ridge and down the other side where it again follows the shape of the eaves and continues down the wall, till it is pegged down to the ground. Over the strip already laid and forming a continuation of the same, another strip is stretched, and so on successively until the entire hut is covered. In order to completely cover the front and back of the hut, the cloth is sewed in such a manner as to adhere closely to the first strip laid and thus the hut becomes perfectly well closed as if built of lumber or stone.

As this description may not give you a very exact idea of the method of proceeding, I present two models of huts showing the way in which they are covered.

This proceeding may appear very complicated and capable of substitution by means of a ready prepared cover which would be placed over the hut and cover it entirely. Well, this proceeding was not found very effective, because between the walls and roof on the one side, and the cover on the other, there was a sufficient space left, within which the mosquitos could find a refuge and place themselves beyond the reach of the sulphurous vapors.

If therefore, we have means of converting all kinds of dwellings in which mosquitos might exist into hermetically closed rooms, we have all the necessary elements to carry out a perfect and efficient disinfection in any town and in any kind of dwelling. We have therefore resolved the third problem propounded, that of separating the three elements that lend themselves to the propagation of Yellow Fever.

But I do not wish to pass over another method which has been practiced in Havana and which we have been utilizing for the last year and a half, and which consists in diminishing the number of mosquitos existing in any given locality.

Natural history teaches us that the "stegomya" mosquitos deposit their eggs in clean water tanks or cisterns, naturally preferring those of the dwellings in which they themselves live, and that if they do not find any such cisterns there, they issue to look for water in the ponds that may accidentally be formed through the rains in the public highways, in the hollows that may be formed by the hoofs of the animals, in the tanks, swamps etc. In order to obtain the disappearance of these last, canalization is preferable, but if this cannot for some reason be carried out, it becomes necessary to have recourse to the spreading of a thin layer of petroleum on the surface of the water, for the double purpose of preventing the larvae of the mosquitos from coming to the surface to breathe the air, and of killing them by suffocation as well as by the toxic effect of the oil. This method has been every where accepted and we continue to make use of it.

Having set forth the doctrine which has served as a basis for the adoption of the measures that are best adapted for preventing the spread of Yellow Fever, I will now proceed to describe the methods that we have adopted in our service, in order to give practical effect to the theory.

Our sanitary organization is different to the United States. In Mexico we have "the Supreme Board of Health", a Federal body, whose action is not only exercised in the Federal District, but in all the ports and frontiers of the republic in such manner that it can take action in all those places and there establish a service that depends on the central administration. The Supreme Board of Health studies the problems, discusses the methods for resolving them, forms a plan of action on which it consults the Federal Executive, and once it is approved by the latter through the Department of the Interior, it is carried into practice by placing it in the hands of the respective committee of the Board, so that the execution of such plan is always kept in the hands and under the inspection of the Board itself, with a general vigilance and oversight of the Department of the Interior.

But as this action, however extensive it may be, does not go beyond the ports and frontier towns, without possessing jurisdiction in the different States which are independent and sovereign as in the American Union, the Federal entities which were interested in giving uniformity to the efforts against Yellow Fever, requested the Federal Executive to confide the direction of the campaign within their own territories, to the Supreme Board of Health. This procedure was adopted by the States of Tamaulipas, Nuevo Leon, San Luis Potosí, Vera Crux, Chiapas, Oaxaca, Tabasco, Campeche and Yucatan, that is to day, all those that are situated on the coast of the Gulf of Mexico and on part of the northern frontier with the United States. With this support, the Federal Executive has found that it held in its hand the possibility of enforcing prompt and efficient action through the Federal Sanitary authorities in all those places that had been invaded by Yellow Fever during the past year.

In order to render the campaign practicable, the

Chamber of Deputies last year appropriated a sum of \$100,000.00, in June of the present year, a further sum of \$40,000.00 and in the month of November last another of \$70,000.00, making a total of \$210,000.00. The interested States on their side contributed a sum of \$17,000.0 and the States of Vera Cruz and Yucatan have contributed the half of the expenses incurred in the campaign against Yellow Fever.

The Supreme Board of Health finding itself thus supported with sufficient authority and the necessary resources, it proceeded to form an expeditionary brigade composed of a physician who was well versed in the doctrine of the transmission of Yellow Fever and in the methods which the American Government had adopted in the Island of Cuba, (methods that permitted the final extermination in that territory), and with a staff of Sanitary Agents who had been instructed in Vera Cruz in the different operations of house to house visits, isolation of the sick, disinfection of dwellings, and destruction of larvae. This brigade travelled from town to town of those had been invaded by Yellow Fever and in each one established the Sanitary Service, training a staff that should in each locality continue the work in the same manner as in Vera Cruz, and follow up the campaign against Yellow Fever.

As all the services so organized remained under the direct control of the Supreme Board of Health in Mexico, this body was able to receive daily reports by telegraph of every case of the disease that was confirmed or that was suspected, and that was discovered in any locality, and it could also immediately send orders by wire, for the steps to be taken to counteract the evil where ever it was found.

This is the method that has been followed and that will be continued until we obtain the total disappearance of the Yellow Fever.

The amount of work executed during the present year, is shown on the diagram that I have the honor to lay before the members of this Association.

But the summary of the results obtained, can be concentrated in the following few words:

Yellow Fever has been permanently stamped out in Nuevo Laredo, Lampasos, Monclova, Monterrey, Linares, Ciudad Victoria, Tancanhuitz, Ozuluama, Tantoyuca, Huejutla, and Tampico, and the reproduction of the disease has been rendered impossible in those places, because care is taken to disinfect the vessels which arrive in Tampico from those places where sporadic cases of the disease are still observed. In Vera Cruz the epidemic disappeared some months ago and there are only sporadic cases found from time to time which are at once carefully attended to.

In Progreso the disease no longer exists.

In Mérida there are only a few sporadic cases found, but in the last mentioned three towns the sanitary labors are continued with the same activity as when the full epidemic prevailed.

We may therefore state that Yellow Fever has been now reduced to certain towns on the Isthmus of Tehuantepec which have railroad connection, and as the attention of the sanitary authorities is now concentrated on those points, it is hoped that the disease will entirely disappear from them before the ensuing summer.

Together with this paper I present the documents that support and explain my observations, together with full details of the campaign that in Mexico has been undertaken against Yellow Fever.

MEMORIA

PRESENTADA Á LA ASOCIACIÓN AMERICANA DE SALUBRIDAD
PÚBLICA EN EL MEETING CELEBRADO EN LA HABANA,
CUBA, DEL 9 AL 13 DE ENERO DE 1905, POR EL DR.
EDUARDO LICEAGA, PRESIDENTE DEL CONSEJO
S. DE SALUBRIDAD DE MÉXICO.

Desde el año de 1903 me he impuesto la obligación de dar cuenta á esta Asociación del curso que ha seguido la fiebre amarilla en la República Mexicana, en cada uno de los años transcurridos desde entonces. Me propongo ahora dar cuenta de la epidemia que hubo el año pasado y de los casos que se han presentado en el actual, en diversos lugares del Istmo de Tehuantepec, en Mérida y en Veracruz, y después hacer una relación suscita de las medidas que se tomaron en el año pasado para extinguir la epidemia y las que desde entonces se están llevando á cabo para extirpar definitivamente esta enfermedad de nuestro territorio.

I

Para cumplir con mi primer propósito, tengo el honor de presentar los cuadros gráficos que representan la morbilidad y la mortalidad por fiebre amarilla en los diversos puntos que alcanzó la epidemia en el año pasado. Debo anticipar desde luego que esos cuadros no pueden representar el número exacto de casos de la enfermedad, porque en esa epidemia, como en la de cualquier otra enfermedad, los primeros casos pasan desapercibidos. En cuanto á la mortalidad, es más probable que los cuadros representen la verdad, porque no se hacen inhumaciones sin permiso del Juzgado Civil de cada localidad, y aun cuando algunos de los casos de defunción sean ocultados por ignorancia ó por malicia, su número es muy reducido y puede despreciarse en el conjunto.

Otro cuadro representa también la morbilidad y mortalidad por fiebre amarilla hasta el 30 de Noviembre último. Como comentario al primero, debo indicar que ha sido un acontecimiento enteramente excepcional que la enfermedad se haya extendido lejos del litoral en donde está el foco primitivo y principal de la endemia, pero en esta ocasión siguió el camino por Tampico á Victoria, á Linares, á Monterréy, á Nuevo Laredo (Tamaulipas) y hasta Laredo, Texas, haciendo incursiones muy limitadas á Lampasos y á Monclova, fuera de la línea troncal que he señalado, y además, á todos los pequeños pueblos que están en las inmediaciones de las anteriores ciudades. De los otros focos, el de Veracruz y el de Mérida, la enfermedad se propagó á Coatzacoalcos, un pueblo pequeño que se llama Jáltipam, á Tehuantepec y á salina Cruz.

Desde el fin del año pasado desapareció completamente en Laredo (Tamaulipas) y todas las poblaciones antes mencionadas, al Norte de la República. La epidemia de Veracruz desapareció también y solo se han presentado casos esporádicos en la Fortaleza de Ulúa, que está frente

á la población misma. En Mérida no existe epidemia sino también casos esporádicos más ó menos frecuentes, y lo mismo ha pasado en las poblaciones del Istmo de Tehuantepec, si se exceptúa la aldea de Texistepec, en donde se presentó una epidemia que está ya en declinación.

Con lo expuesto creo haber cumplido el compromiso que voluntariamente he contraído de venir á declarar delante de esta Asamblea el estado que guarda la fiebre amarilla en la República Mexicana.

II.

Quisiera poder presentar una relación detallada de los esfuerzos que se están haciendo en la República Mexicana desde 1902 para combatir la fiebre amarilla y procurar la desaparición completa de esta enfermedad, pero este estudio prolongaría mi relación y prefiero decir lo que se hizo el año pasado para impedir el progreso de la epidemia y las medidas que se han tomado desde entonces y se continúan tomando ahora para hacer desaparecer definitivamente la fiebre amarilla de nuestro territorio.

La Doctrina de la trasmisión de la fiebre amarilla por intermedio del mosquito, no es perfectamente conocida porque en esta misma Asociación la presentó por primera vez el Doctor Reed, el inmortal autor del procedimiento científico destinado á demostrarla por medio de experimentos que quedarán memorables en la historia de la ciencia; pero me veo obligado á recordar los puntos capitales de esa doctrina, porque ellos han servido á las autoridades sanitarias de México para establecer la campaña contra la fiebre amarilla.

Para que pueda existir la fiebre amarilla, se necesita el conjunto de estas tres circunstancias:

1º Que exista enfermo de fiebre amarilla:

2º Que exista mosquito del género "stegomya" que pique al enfermo de fiebre amarilla, y

3º Que haya persona no inmune que pueda ser picada por mosquito infectado, á quien se inocule la enfermedad.

El problema para hacer la profilaxis de la enfermedad, queda reducido á disociar estos tres factores. En efecto, si no existe enfermo de fiebre amarilla los mosquitos no pueden ser infectados; si no existen mosquitos infectados no puede hacerse la transmisión y si no existen personas no inmunes, no hay á quien transmitir la enfermedad.

Como hasta el momento actual no hay ninguna vacuna preventiva de la fiebre amarilla, no podemos transformar en inmunes á los que no lo son por no haber sufrido ataques anteriores de la enfermedad. De modo que este factor, en práctica, no lo podemos eliminar; pero sí está en nuestra posibilidad conocerlo y voy á exponer la manera como procedemos en México para llegar á este resultado: en cada población de las que han sido visitadas por la fiebre amarilla, se hace un padrón muy exacto de todas las personas no-inmunes, anotando el nombre, sexo, edad, lugar de procedencia, tiempo que lleva en la localidad infectada ó que puede serlo, y señas exactas de su domicilio. Teniendo estos datos hemos establecido para cada localidad un personal que se ocupa en hacer día á día la visita domiciliaria. Cuando uno de los Agestes sanitarios descubre que una persona no-inmune tiene elevación de temperatura no trata de averiguar el origen de la fiebre, sino que aísla inmediatamente á esa persona. En ese aislamiento se le conserva si la observación llega á demostrar que se trata de la fiebre amarilla, pero si es cualquiera otra enfermedad febril, se le deja en libertad.

Quedan pues, los otros dos factores: enfermo de fie-

bre amarilla y mosquito del género “stegomya” que pueda transmitir la enfermedad.

El enfermo de fiebre amarilla no puede transmitir su enfermedad por el aliento, ni por las excreciones de su cuerpo ni por el aliento, ni por las excreciones de su cuerpo, ni por los vestidos que haya manchado, ni por el aire que lo rodea: solo es peligroso en el caso de que pueda ser picado por un mosquito “stegomya;” luego el modo de aislarlo consiste únicamente en impedir que lleguen hasta él los mosquitos que puedan picarle. Este aislamiento se hace colocándolo en un cuarto en donde las ventanas estén provistas de malla alambre bastante tupida para que no permita que á través de ella pueda pasar algún mosquito, y que la puerta de entrada al aposento sea doble y compuesta de dos bastidores provistos también de malla de alambre, separados también de malla de alambre separados tambien por un intervalo de un metro y dispuestos de tal modo que cuando se abra la puerta exterior se cierre necesariamente la interior y que para abrir ésta última, queda forzosamente cerrada la exterior. Esto se consigue por medio de una cadena de determinada longitud que liga las dos puertas. El cuarto protegido de esta manera es el que realiza el ideal del aislamiento de un enfermo de fiebre amarilla.

La visita domiciliaria de que antes hablé, ha permitido descubrir desde el primer día al enfermo sospechoso de tener la fiebre amarilla. El Agente que descubre á un enfermo, lo conduce inmediatamente al Hospital Civil, si es una persona pobre, al Hospital Militar, si pertenece al Ejército y á una “Casa de Salud” especial, si es persona acomodada que puede pagar su asistencia.

Queda, pues, resuelto el segundo problema: el del aislamiento del enfermo de fiebre amarilla.

Vamos ahora á estudiar el tercero. Mientras se hizo el descubrimiento del enfermo, pudo ser picado por un

mosquito género “*Stegomyia*,” pero como la observación ha enseñado que estos mosquitos siguen habitando la casa en donde picaron al enfermo, bastará destruirlos dentro de esa casa para asegurarse de que no irán á picar á una persona no inmune. La experimentación nos ha enseñado el modo particular de proceder para destruir los mosquitos dentro de una habitación, en un coche de ferrocarril ó en un carro Pullman.

Los experimentos que se han seguido con mucho rigor en los Laboratorios del Consejo, y de que os dará cuenta con mucho detalle el doctor Fernando López, Vocal del mismo consejo, han enseñado que la combustión del azufre en determinadas proporciones produce *seguramente* la muerte de los mosquitos, pero sobre todo, ha introducido en la técnica de la desinfección un modo infalible para descubrir que esta operación ha sido eficaz. Este modo infalible es el de poner siempre mosquitos “testigos” en el mismo local donde se hace la desinfección y en el sitio menos apropiado para que les alcance la acción de los vapores sulfurosos. Si en estas condiciones desfavorables, al terminar la desinfección se encuentra que los mosquitos que han servido de “testigos” han muerto, es indudable que todos los que hubieran existido en la misma habitación, en condiciones más favorables para recibir la acción del ácido sulfuroso, deben haber muerto también.

En un gran número de poblaciones de la República y justamente aquéllas donde se ha desarrollado la fiebre amarilla, las habitaciones de los pobres son chozas construidas con materiales que permiten la entrada y salida fácil de los mosquitos; la mayor parte de ellas tienen sus techos formados por zacate ó ramas secas de otros vegetales. Parecía imposible poder hacer la desinfección de estas chozas—(que entre nosotros se llaman “jacales”)—pero una serie de continuados y perseverantes experimentos permitieron al doctor D. Narciso del Río resolver sa

tisfactoriamente el problema. Quiero detenerme un momento en explicar la dificultad de llegar á un procedimiento eficaz.

La experiencia ha enseñado que cuando se pone en el interior de una habitación un aparato para hacer la combustión del azufre, luego que se hace el desprendimiento del ácido sulfuroso los mosquitos huyen buscando la salida y se dirijen á cualquiera abertura por donde penetra la luz, aun cuando esta sea la ceradura de una puerta y se salen de la habitación sin haber sido alcanzados por los gases que los debían matar. Como las chozas de que que acabo de hablar inevitablemente tenía un gran número de aberturas, los mosquitos infectados se escapaban y podían ir á otras partes á infectar á los no-inmunes. El Doctor del Rio discurrió forrar estas chozas tan completamente, que ningún mosquito pudiera escaparse y procedió de esta manera: hizo construir tiras de un género que se llama manta, con los cuales cubre la pared lateral de la choza; estas tiras llegan hasta la parte donde comienza el techo; como este es inclinado y sobresale del muro, la tira de género sigue el contorno de la cara inferior del techo, se prolonga en toda la cara superior, llega al vértice, baja del otro lado, da vuelta al rededor de la parte saliente y vuelve á aplicarse en el muro del otro lado hasta la parte inferior en donde se le fija al suelo por medio de clavos. Encima de la tira ya colocada é imbricada sobre ella, se coloca otra en la misma disposición y así sucesivamente hasta cubrir toda la choza. Para cubrir completamente las carras anterior y posterior de esa choza, se cose el género de manera que se adhiera perfectamente á la primera de las fajas que se colocó y se convierte la habitación en una tan perfectamente cerrada, como si fuera de madera ó de piedra.

Como esta descripción pudiera no dar idea exacta del procedimiento, presento á usted dos modelos de chozas y la manera como se deben cubrir.

Este procedimiento pudiera aparecer como muy complicado y susceptible de substituirse por una funda, ya hecha, que se colocara encima de la choza cubriéndola por completo. Pues bien, este procedimiento no fué eficaz, porque entre los muros y el techo, por un lado, y la funda por el otro, quedaba un espacio suficientemente para que se albergaran los mosquitos y no fueran alcanzados por el ácido sulfuroso.

Si, pues, tenemos medios de convertir en cerradas herméticamente todo género de habitaciones en donde puedan existir mosquitos, tenemos los elementos suficientes para hacer en cualquiera población y en cualquiera clase de habitación una de sinfección perfecta y eficaz. Está, pues, resuelto el tercero de los problemas que nos habíamos planteado: el de disociar los tres elementos que son capaces de permitir la propagación de la fiebre amarilla.

Pero no quiero dejar de hablar de otro que se ha puesto en práctica en la Habana y que nosotros estamos utilizando desde hace un año y medio, y que consiste en disminuir el número de mosquitos existentes en una localidad dada.

Fundándose en los conocimientos de Historia Natural, se sabe que los mosquitos del género "Stegomya" ponen sus huevos en los depósitos de agua limpia, naturalmente de preferencia en los de las habitaciones donde ellos viven, pero que si no encuentran allí esos depósitos, los van á buscar fuera en los charcos que las lluvias forman accidentalmente en las calles y plazas; en las oquedades que las pisadas de los animales hacen en el suelo, en los estanques, en los pantanos, etc. Para hacer desaparecer estos últimos, se emplea de preferencia la canalización, pero si por cualquiera circunstancia ésta no puede ejecutarse, entonces se recurre á la aplicación del petróleo que extendido en capa delgada sobre la superficie del

líquido, tiene el doble efecto de impedir que las larvas de los mosquitos salgan á respirar el aire atmosférico y las haga morir por asfixia, además del efecto tóxico sobre ellas. Este procedimiento está aceptado en todas partes y nosotros lo seguimos utilizando.

Expuesta la doctrina que ha servido de base á la adopción de las medidas más apropiadas para combatir la propagación de la fiebre amarilla, voy á indicar ahora la organización que hemos dado á nuestros servicios para llevar la concepción teórica á la práctica.

Nuestra organización sanitaria es diferente á la de los Estados Unidos. En México tenemos el "Consejo Superior de Salubridad, que es un cuerpo Federal cuya acción no solamente se ejerce en el Distrito que lleva este nombre, sino en todos los puertos y fronteras de la República, de modo que esa acción puede extenderse á todos esos lugares y en todos ellos establecer un servicio que dependa de la Federación. El Consejo Superior de Salubridad estudia los problemas, discute la manera de resolverlos, formula un plan de ejecución que consulta al Ejecutivo Federal y una vez aceptado por éste, por intermedio de su Secretaría de Estado y del Despacho de Gobernación, lo hace efectivo poniendo en manos de la Comisión respectiva del Consejo la acción, de manera que la ejecución que da confiada á unas solas manos, siempre bajo la inspección del Consejo y bajo la suprema vigilancia de la secretaría de Gobernación.

Mas como esta acción, por extensa que sea, no alcanza más que á los puertos y ciudades fronterizas, pero no puede tener intervención en los diversos Estados que son independientes entre sí como en la Unión Americana, las Entidades Federativas que estaban interesadas en dar unidad á la acción para combatir la fiebre amarilla pidieron al Ejecutivo Federal que él confiara la dirección de esa misma campaña, en sus propios territorios, al Consejo

Superior de Salubridad. De esta manera han procedido los Estados de Tamaulipas, Nuevo León, San Luís Potosí, Veracruz, Chiapas, Oaxaca, Tabasco, Campeche y Yucatán, es decir, los que comprenden todo el litoral del Golfo de México y una parte de la frontera Norte con los Estados Unidos. Contando con este acuerdo, ha resultado que el Ejecutivo Federal tiene en sus manos la posibilidad de hacer de una manera pronta y eficaz la intervención de las autoridades sanitarias federales en todos los lugares que fueron invadidos por la fiebre amarilla durante el año próximo pasado;

Para hacer realizable la campaña, la Cámara de Diputados votó en el año anterior un crédito de \$100,000.00 cs. en Junio del actual otro de \$40,000.—00 cs. y en el mes de Noviembre último, otro de \$70,000.—00 cs.; en suma, la cantidad de \$210,000.—cs. Por su parte, los Estados interesados han contribuído con la suma de \$17,000.—00 y los de Veracruz y Yucatán con la mitad de los gastos que se eroguen por cuenta de la campaña contra la fiebre amarilla.

Armado así el Consejo Superior de Salubridad con la autoridad suficiente y con los recursos indispensables procedió á formar una Brigada expedicionaria compuesta de un médico muy instruido en la doctrina de la trasmisión de la fiebre amarilla y de los procedimientos que el Gobierno americano había implantado en la Isla de Cuba, —(procedimientos que le permitieron desterrarla definitivamente de ese territorio)—y de un personal de agentes sanitarios que habían aprendido en Veracruz á ejecutar las diversas operaciones de visitas domiciliarias, aislamiento de enfermos, desinfección de habitaciones y destrucción de las larvas. Esta brigada, digo, fué á establecer, pueblo por pueblo, de los invadidos por la fiebre amarilla, los servicios sanitarios en cada uno de ellos, adiestrando á un personal que debería continuar en cada loca-

lidad procediendo de la misma manera como se había hecho en Veracruz para combatir la fiebre amarilla.

Como todos los servicios organizados así, quedaban directamente dependientes del Consejo Superior de Salubridad de México, este Cuerpo pudo tener noticia diaria, por medio del telégrafo, de cada caso nuevo de enfermedad confirmado ó sospechoso que aparecía en una localidad y dictar inmediatamente y por la misma vía telegráfica, las disposiciones apropiadas á remediar el mal en donde quiera que se encontrara.

Este es el camino que se ha seguido y que se continuará siguiendo hasta la desaparición completa de la fiebre amarilla.

La suma de los trabajos llevados á cabo durante el año actual, los representa el cuadro gráfico que tengo el honor de poner á la vista de los Señores miembros de esta Asociación.

Pero el resumen de los resultados alcanzados lo puedo concretar en unas cuantas palabras:

La fiebre amarilla ha desaparecido definitivamente de Nuevo Laredo, Tampazos, Monclova, Monterrey, Linares, Ciudad Victoria, Tancanhuitz, Ozuluama, Tantoyuca, Huejutla y Tampico, y se ha hecho imposible la reproducción de la enfermedad en esos lugares, porque se cuida de desinfestar todos los buques que llegan á Tampico procedentes de los lugares donde hay aun casos esporádicos de la enfermedad. En Veracruz la epidemia ha desaparecido hace muchos meses y solo quedan, de cuando en cuando, casos esporádicos que se persiguen inmediata y eficazmente.

En Progreso ya no existe la enfermedad.

En Mérida no existen más que casos esporádicos, pero en estas tres últimas poblaciones los trabajos sanita-

rios continúan con la misma actividad que cuando estaban en plena epidemia.

Se puede decir que la fiebre amarilla está reducida en la actualidad á algunas poblaciones del Istmo de Tehuantepec, de las que recorre el Ferrocarril del mismo nombre y que, concentrada toda la atención de las autoridades sanitarias en esas localidades, es de esperarse que desaparecerán de ellas antes del verano próximo.

Adjuntos á esa "Memoria" van todos los documentos que la apoyan, la aclaran, y ofrecen todos los detalles de la campaña emprendida en México contra la fiebre amarilla.

PSEUDOKOUSMA.

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Pseudokousma (1) is a derivative title selected from otological nomenclature as best representing that condition of *falsehearing* in which there is a false preception of pitch in one or both ears. It is to be differentiated from *Diplacusis*, in which a reduplication of the original note, or noise, may be heard in one or both ears; and from *Paracusis*, which refers simply to an abnormal preception of sound. The application of the word *diplacusis* as used by almost all authors is not to be commended. It is indifferently used to designate both double-hearing (*diplacusis*) and false-hearing (*pseudokousma*) and some times a composite condition which includes both of these phenomena. Gradenigo (2) speaks of a *monaural diplacusis* in which "the false tone is separated by a definite *harmonious interval* from the true;" and of a *binaural diplacusis*, which is "some times *harmonic* but occasionally *disharmonic*, the false tone being perceived about one-half or one-third of a tone higher or lower than the true."

The foregoing reference suggests the desirability of greater accuracy in the use of a nomenclature supposed

to describe acoustic phenomena. The conditions obtaining in Pseudokousma will be illustrated later in a report of two interesting cases, one a physician who has been a superior amateur violin player and for that reason peculiarly competent to detect and describe the slightest variations of tone; the other is that of the writer, who, by reason of the cultivation of a natural gift, has ever been "moved by concord of sweet sounds."

Various writers recognize certain conditions of which *false-hearing* is a factor, but no effort appears to have been made to study the causes, pathology, and treatment of this disease as a disease *per se*, and unassociated with diplacusis.

Von Wittich (3) and Herman Knapp, (4) have reported cases of *false-hearing* in which double-hearing did not occur, both ascribing this condition to a derangement of the harmonious action of the two cochleae. Knapp thought that the lamina spiralis of one was attuned for a different tone-scale than that of the other; while Von Wittich went further and thought that "if the organ of Corti really brings about the perception of a certain tone of a fixed number of vibrations and duration by means of its proper peculiarities of construction, it is conceivable that exudation into the tympanic cavity, which would thereby alter the pressure in the labyrinthine fluid, might through this change of pressure affect the functional integrity of the endings of the nerve-fibres; so that, *e. g.*, fibres attuned for tone B may come into functional activity along with others corresponding to the tone A, the A fibres being also stimulated by the tone B" (Gruber). Among those who refer false-hearing to the *internal ear* are Helmholtz, (5) Spear, (6) Gradenigo, (7) Hans Daae, (8) Pomeroy, (9) Gellé, (10) Bezold, (11) Hammerschlag (12) and Hensen (13)—Among others who refer it to the *middle ear*, and who mostly classify it as a paracusis or a *diplacusis*, are Gru-

ber, (14) Blau, (15) Bonnier, (16) Etrevant (17) and Bishop, (18) an associated middle-ear and internal-ear disease being mentioned by Gradenigo and Hans Daae (Christiania). Blau and Bishop are the only two who have referred to a middle-ear cause exclusively. F. Bezold (Munich), estimating the upper tone limit at about 55000 vibrations, considers that "for the appreciation of this continuous range of tone, there should be, at the peripheral termination of the acoustic nerve, some mechanical auxiliary apparatus which should possess the property of chromatic stringed instruments, and have an element in it corresponding to each individual tone of the whole scale with which it may enter into sympathetic vibration, and which would communicate a stimulus to the nerve-fibres connected with it. With Helmholtz he thinks it probable that "this apparatus is represented by the cochlea, and that the best adapted arrangement for this sympathetic vibration is the *membrana basilaris* of that organ." The theory that the fibers of Corti are directly instrumental in perceiving tone has given away to the later claim of Helmholtz who, as we see, attributes this function to the *membrana basilaris*, a view supported by Gruber and Bezold. It is thus readily seen that the theory of the faulty attunement of Corti's fibre (*Knapp*) must be abandoned, and with it that of Von Wittich. The latter's ingenious conception of an exudation into the tympanic cavity, etc., is open to criticism and remains to be clinically demonstrated. Referring to simultaneous activity fibres attuned to A and B, the writer would expect to produce from a piano thus stimulated a discord, having no relation to overtones, harmonic or disharmonic.

If we are to accept the conclusions of Helmholtz that "in the radiate fibrous arrangement of this membrane (m. basilaris) there exists a system of cords of different tension and length," (19) the contention made by Bezold should be seriously considered.

It is not the purpose of the writer to discuss or ques-

tion this hypothesis, any more than to establish a landmark for guidance in developing the pathological factors which *result* in a disturbance in the elements of the sound-perceiving mechanism, and in this connection he would suggest the necessity of not losing sight of *tonal subdivisions*, such as the *comma of Pythagoras* (one quarter of a semi-tone), each *subdivision, or comma, corresponding to its fundamental in the production of a sympathetic vibration.*

In order to disprove the theory of a *permanent structural lesion* consisting of a *faulty tuning* either of the fibres of Corti or of the cords of the membrana basilaris as the etiological factor of this disease, it is only necessary to state that recorded cases prove that a disappearance of the pseudokousma has frequently resulted from treatment directed solely to the middle ear. It is not to be denied that a functional derangement of the cochlear structures may be present, co-existing and disappearing with lesions of the sound-conducting apparatus. Whether the ultimate sound-sensation is ascribed to the fibres of Corti, or, as seems to be proven, to the cords of the membrana basilaris, we know that it is to external vibratory impulses that they respond, each being brought into sympathetic vibration with its fundamental, which, in turn, forms a part of the composite tone or noise from without. It follows, then, that since in this disease these cords do not reproduce the exact tone having an external origin, *the character of the vibrations must have become altered during transmission.*

It is important to determine by what derangement of the sound conducting mechanism this departure from normal hearing is brought about. Primarily we must consider whether the original sound impulse is composed of regular, periodic vibrations, producing a musical compound tone; or, an irregular succession of sound-waves of varying length and intensity, the resultant sound being

perceived by the normal ear as a noise. For the purpose of this paper the latter consideration may be omitted altogether, since the false-hearing under consideration is referred to a curable (?) middle-ear disease of one side only, the tone-perception of the other ear being presumably normal.

It necessary therefore, to prove a derangement of the middle-ear function, and in order to do this the structures involved will be briefly considered.

The *Membrana Tympani*:—This structure, like all other vibrating bodies, possesses a fundamental tone. In order to transmit continuous sound-waves at absolutely periodic intervals it cannot act as an independent body, its immediate restoration to a state of comparative equilibrium (rest) being necessary in order to receive and transmit succeeding sound-waves.

Should any of these correspond to its fundamental tone, and should it not immediately return to a state of rest, the resultant transmitted impulse would be intolerable; hence it must be muffled by being connected with a body of greater density capable of receiving the impulse. This is accomplished by its connection with the ossicular chain. Another requirement is that there should be no change in the structure or relations of the membrane, the preservations of its normal tension, direction, thickness and density determining its value as a receiving and transmitting agent. It is readily seen how a departure from the normal concavity (outward), either through retraction or relaxation, can modify the sound-impulse. This applies, as well, to localized areas affecting the normal thickness of the membrane, any increase or decrease of density or tension necessarily interfering with regular, periodic vibration. Of more importance are the retracted areas caused by adhesions. This mechanical fixation completely alters the vibrating quality of the membrane, its irregular sur

face now presenting vibrating areas of unequal density and tension, each possessing its fundamental tone after the manner of the parent membrane.

The *Ossicular Chain* is of importance in that it helps to control the inward excursion of the drum, muffling it, receiving its impulses and assisting in their transmission to the sound-perceiving apparatus. Any change in the direction of this transmitting force, or impairment of ossicular mobility from any cause, would form an obstacle to tympanic compensation.

The *Intra-tympanic muscles* constitute the "balance of power" in the middle ear. Antagonistic in their directed force, their accommodative and selective power permits a normal adjustment of the relations between the middle and internal ear, the *stapedian curb* (16) influencing labyrinthine pressure by controlling the impact against the *membrana obturatoria*.

The *M. Obturatoria* and the *M. T. Secundaria* are important in that any departure from their normal elasticity would interfere with tension and compensation and modify the protection of the labyrinth.

The *Eustachian tube* is no inconsiderable factor in the mechanism of audition, since upon its patency, in the absence of other lesions, depends the normal physical adjustment of the intra-tympanic structures, as well as the ventilation of the confined air-spaces.

The *Tympanic cavity* subserves many important functions. Its contained air, being capable of rarefaction and condensation, provides for the regulation of intra-tympanic tension, and, acting as an elastic buffer, or cushion, to the incursions of the drum, maintains the equilibrium of that structure. It not only affords lodgment to the ossicular chain, but, aided by *M. T.* and *t. muscles*, furnishes the resistance necessary to maintain its integrity. Further,

it serves as a *resonance-chamber*, and a *sounding-board* functions which will be referred to subsequently in connection with the mastoid cells.

The *Mastoid cells*. These, in so far as audition is concerned, constitute a part of the middle ear. Contrary to the belief of most physiologists, the writer is convinced of their importance in the function of hearing. Their connection through the antrum with the middle ear affords a material increase in the capacity of that structure as an air-chamber, while, through the elastic resistance of their contained air, they supplement the intra-tympanic air in protecting from external violence the tympanic and labyrinthine contents. The importance of these cells in supplementing the tympanic cavity in its capacity as a *resonance-chamber* and as a *sounding-board* must be conceded, the preception of very low tones being undoubtedly aided by their presency.

Their obliteration from various causes, such as confined pus, granulation tissue, eburnation, or structural diploetic changes, at once modifies their functions and contracts the auditory field. Evidence of such a contraction is afforded in numerous recorded cases of impaired audition in which a considerable gain in hearing-power followed the re-establishment of a chronic purulent otorrhoea. The gain in these instances was undoubtedly due to the removal of an obstruction to the drainage of the cells. In the writer's experience improvement in hearing followed the removal of large masses of granulation tissue from the cells in cases where neither pus nor a perforated drum existed. In one where the integument was sutured and the wound hermetically closed at the conclusion of the operation, prompt restoration of comparatively good hearing was established. Interference with audition must certainly occur as a result of sclerosis, eburnation or diploetic formation in the mastoid, but particular attention

is not drawn to it on account of the slow progress of the disease and a corresponding loss of hearing-power. As a result of these investigations, as well as from the information derived while conducting experiments with the stem of a tuning-fork applied to various regions of the mastoid process in the case about to be cited, the writer is confident that the integrity of the normal air-space is necessary to the maintenance of a perfect relationship between the sound-conducting (so-called) and the sound-perceiving mechanism. Further investigations along this line may possibly demonstrate the propriety of utilizing the stem of a tuning fork as a diagnostic agent in determining the character of a particular mastoid lesion, e. g. *eburnated tissue*, of which Gruber says: "We possess no mode of examination which affords any tolerably trustworthy evidence of the existence of this condition. Neither palpation, percussion, nor auscultation of the region yields the slightest information in this matter" (Leanec). (20)

CASE I.

On June 9th 1897, Dr. T—, aet. 61 yrs., a local physician in active practice, presented himself for examination and treatment. He gave the following history: In May 1886, he contracted a severe cold which was followed by greatly diminished audition, pain and a sensation of "plugging" in both ears. There was no tinnitus. Prior to this time the hearing had been usually acute, although for thirty year he had suffered from nasal and naso-pharyngeal catarrh. For the relief or the "plugging" he used the galvanic current, anode in right, cathode in left auditory canal. A moderate current promptly relieved the right ear, but produced a sensation of tension in the left, followed by a snap such as follows the breaking of a tense violin string.

The pre-existing symptoms in this ear were now

found to have been supplanted by a profound tinnitus of the marine-shell type other auditory phenomena also became manifest, one consisting of a marked difference between the two ears with regard to *tone-perception*, all ordinary tones being perceived by the left ear from three to five commas (of Pythagoras) *lower in pitch than by the right*; another being a *dysakousma*, or *dysaesthesia acustica*, a condition causing great pain and distress for all musical sounds. Subsequently audition in this ear became progressively and profoundly impaired, with gradual increase of a tinnitus which was relieved by the recumbent position and entirely disappeared during occlusion of the left auditory canal. The left M. T. was found lustreless and retracted, with sufficient loss of transparency to conceal intra-tympanic details. A slight prominence of the processus brevis, with fore-shortening and sharpened linear marking of the manubrium, indicated rotation in the direction of its long axis. Functional examination of the *right* ear gave a positive Rinne, with slight loss of bone-conduction for the C. fork (32 d. v, s.) In the *left* ear forks C. and C (4) gave negative Rinne; C (2) and C (3) gave positive Rinne with greatly lowered Ac; and for C and C, (1) Ac. was found to equal Bc. In both ears the lower tone-limit was raised, showing diminished (senele) Bc. The upper-tone limit was found lowered in both ears but more in the left. The C and C. forks gave a positive Weber. A loud ticking watch was heard at 2" and a residual whisper at one foot. In a comparison between the two ears it was found that for forks C., C, and C (1) the tone, both by Ac and Bc, was perceived *lower* in the *left* ear by five, five, and three commas respectively, while C (2), C (3) and (4) were heard two, five, and two commas higher, respectively, in the same ear.

Treatment with Iodine and menthol vapor during Eustachian catheterization, together with applications of

a weak solution of silver nitrate, to the pharyngeal orifice of the tube was followed by only slight relief from the tinnitus and no improvement whatever in hearing. On January 14th 1898 further impairment was noticed, this, however, promptly responding to treatment. At this time the pitch-relation was identical with that of June 1897. The use of the pneumatic otoscope was advised and the silver application continued. An examination of January 22d 1898 gave a positive Rinne throughout the series, and subsequent examinations showed a gradual approach to the normal relation between air and bone-conduction. During this time the pitch-relation had also undergone a change for the better, C being now (May 10th) perceived only three commas lower by the left ear, while C (3) and C (4) were each perceived normally by the two ears. Throughout the treatment it was found that the only relief obtained from the constant tinnitus, which was the most annoying symptom, the dysakousma having become less marked, was by forcibly restoring the T. M. with the Siegel otoscope. A very considerable suction was necessary to accomplish this, but on no occasion was it attended with pain—Catheterization gave negative results, and, in fact, rather augmented the symptoms.

CASE II.

The *writer's case*, as found by frequently repeated examinations of his hearing, differs but little from the foregoing case with regard to the *Pseudokousma*. It differs, however, in its etiology and the physical characters observed, as well as in the treatment employed to secure relief. The existence of somewhat hypertrophied turbinates, together with slightly obtunded audition of, and an occasional tinnitus of varying intensity and quality in, the left ear for the past ten months, indicates the existence of eustachian and middle-ear lesions and uricacidaemia. The last mentioned would seem to be partly responsible for the

tinnitus, and no doubt shares in the causation of the other disabilities, since under more favorable conditions—absence of severe mental strain, and proper physical exercise—the writer is exempt from all annoyance.

The false-hearing has now been noticed for about seven months. During this time there has been a positive Weber, a negative Rinne existing in the left ear for only the lowest fork.

A test on May 3d showed this changed to a positive. The tone-limits are and have been apparently normal. Repeated experiments show no difference in tone-perception as between air and bone-conduction. The writer has, however, been able to demonstrate that, in comparing the bone-conduction of the two sides in cases of false-hearing, it is essential that the stem of the fork should be placed on identical sites, since he has found that a difference of two or more commas may be determined by placing the stem on different regions of the mastoid, not only of the opposite side *but also of the same side*.

The following experiments will illustrate this point, first, as to the pitch-relation between the two ears as determined by bone-conduction, and, secondly, the difference in pitch for different regions of the same mastoid process, the writer performing the experiments on himself.

EXPERIMENT N^o I.

When the fork C (128 v. s.) is struck and the stem placed first on the *upper* part of the mastoid of the *right* side, and then on the *same* region of left side, the tone is perceived more than two commas *higher* in pitch on the left side. When this is repeated, using the *lower* portion of each mastoid on which to place the stem, the same relative difference in pitch is obtained. These conditions were found to be independent of the presence of overtones,

EXPERIMENT N^o II.

(a) When the fork C is struck strongly and placed first on the lower part of the mastoid and immediately transferred to the *upper* part, the tone is perceived about *one comma higher* in pitch in the *posterior*-superior, and *two commas higher* in the *anterior*-superior part, being more distinct and accentuated *directly over the mastoid antrum*.

(b) These conditions are exactly reversed when the stem is first placed on the *upper* part and then transferred to the *lower* part. In the first part (a) of experiment N^o II the loss of overtones does not appear to affect the pitch-relation; but in part (b) the tone now being higher in pitch, there comes during the subsidence of the overtones a *blurred* tone-image, i. e., a discord, which gradually becomes less pronounced until, a pure tone being now perceived, the fork is again heard higher in pitch on the upper segment.

FORK C (1):

Experiment N^o I:.....Same as with fork C

Right,..... “ “ “ “ “

(a)

Left..... “ “ “ “ “

Experiment N^o II.

Right

(b).....No change in pitch.

Left

FORK C (2):

For both upper and lower segments the tone

Experiment N^o I.....is heard nearly four commas lower in left,

(a)

Experiment N^o II.....No change in pitch.

(b)

FORKS C (3) & C (4):

Experiment N^o I.....Both side alike.

Experiment N^o II.....No change in pitch.

FORK C (0)

Experiment N^o I.....*Higher on right side.*

(a)

Experiment N^o II.....Same as with fork C.

(b)

¶ In case N^o I, (Dr. T—), Experiment N^o II showed no change for any fork except C and this for the left mastoid only, where it was found that the *lower* part perceived the tone *five* commas higher than the upper part. It may be noted here that between the several experiments an interval, sufficiently long to prevent *tone-fatigue*, was allowed to elapse. Care was also taken to prevent confusion between tones and over-tones.

¶ In case II (the writer's) it is important to discuss the symptomatology at somewhat greater length than in the brief outline already presented.

During the progress of the disease, which probably began prior to May 1892, when the removal of an impacted ceruminous mass relieved a sudden deafness of the left ear, no pronounced departure from normal hearing has been observed in this ear, except on the few occasions (3) when it was found necessary to remove some cerumen. On the last occasion, June 1896, the mass contained distinct (macroscopic) evidence of the presence of *aspergillus* spores.

In addition to the foregoing, the writer has been conscious during the last two years of a more or less constant sensation of weight and fulness of the left mastoid region, some times amounting to a feeling of what might be termed *intra-mastoidal* pressure, while, at not infrequent intervals, extreme tenderness has been noticed over the region supplied by the posterior-auricular branch of the facial nerve, this tenderness being coincident with the sense of fulness in the mastoid. These conditions, associated with the tinnitus and a recently discovered, slightly obtunded audition, and still more recently a condition of false-hearing, determined the writer to investigate the case. Inflation (using the Dench apparatus with the vapor of menthol, camphor and iodine) showed the left Eustachian tube only slightly less patent than the right, and not only failed to produce any perceptible increase in hearing-power but was followed by an increase of the tinnitus.

Local treatment (self-directed) for the relief of the recurring intra-nasal disease, together with the application of astringents to the ostium tubae, proved unsatisfactory. Momentary relief from the tinnitus—the most annoying symptom—could be obtained at any time by means of direct pressure against the manubrium with a cotton-tipped probe, but to obtain any considerable respite it was found necessary to entirely occlude the meatus for some time.

It is not unimportant to state that, in the day time, the subjective sounds became noticeable only after some exacting piece of work, the symptoms being commonly more pronounced during the evening when outside noises had ceased.

The foregoing enumerated tests were applied to the mastoids at various times, both immediately preceding and succeeding the production of the cessation of the subject

tive noises by direct pressure or by occlusion, with the result that *no relation between the tinnitus and the false-hearing could be demonstrated*. Onwing to the evident catarrhal condition of the tympanic cavity, the mastoid antrum, and the mastoid cells, treatment with the camphor-menthol-iodine vapor was persisted in, regardless of other conditions, with the result that very recently *the false-hearing was found to have entirely disappeared*. Although the tinnitus is still more or less in evidence it is much modified, while the hearing power has become practically normal. The writer is confident of still better results under proper dietetic and physical conditions. It is certain that a very considerable amelioration of symptoms followed sundry operations during the past few years by N. Y. surgeons of great eminence, but they were undertaken under circumstances which precluded the necessary attention to the proper systemic treatment which should have followed. These operations were directed towards the relief of intra-nasal occlusion and pressure-pain, a pain which resembled that of an acute catarrhal ethmoiditis and which once or twice produced symptoms exactly like those of hay-fever. As a result, the intra-nasal condition was found to have been relieved, the lateral occipital tenderness to have disappeared, and, after the last operation, the tinnitus was found considerably diminished. When the distribution and anastomoses of the branches of the 5th, 7th and 9th cranial nerves are considered, it is not difficult to determine the direct or reflex effect of mechanical or toxic irritation of any of their branches and the symptoms or lesions to which it may give rise. The effect of such irritation is also seen in the *reflex oscillation of the membrana tympani*, the abolition of which, together with relief from the tinnitus, has frequently been brought about in the manner already described.

Although the *uric acid* factor in the causation of lesions of the nose, throat, and ear has been disclaimed and

utterly abandoned by certain rhinologists and neurologists of note, it may yet appear that their antagonism is based on the results of a plan of *local* treatment, operative or otherwise, in which an *associated* plan of treatment directed towards the elimination of toxic matter was conspicuously absent. If their conclusions were the result of their observation of *any number* of cases in which the necessary therapeutic, dietetic and hygienic measures were not rigidly enforced, their disappointment was enevitable.

The writer's experience affords abundant proof of the necessity of such a *morale* while conducting the treatment of even the simplest cases. In his own case the catarrhal swelling of the mucosa of the mastoid region and the adjacent mucous tissues, resulting in an altered function of the sound-conducting apparatus, was undoubtedly due, primarily, to imperfect elimination of various toxic substances, not the least important of which was uric acid.

It is now pertinent to show the particular manner in which a departure from the normal physiological conditions above mentioned has been made manifest in the two cases under consideration.

In case I, we have evidently a traumatic lesion resulting from the unwise use of an unmeasured galvanic current which, though described as *moderate*, was probably excessive. Prior to the "taking cold" there has been no conscious disability in this *left* ear—the ear so important to the violin—player; but suddenly, during the application of the electrical current, a *snap* is heard, described as being similar in quality and loudness to that of the "snapping of a tense violin string." *Immediately* there is a great "jangle" of sounds, but later this becomes modified and settles down to a constant tinnitus and a condition of false-hearing in the ear affected. There can be no doubt as to the *cause* of this profound disturbance of the labyrinthine contents. The clinical history of the case presents

positive evidence of the partial or complete suspension of the force required to regulate the impact against the m. obturatoria. In other words, *the integrity of the stapedius muscle was impaired, or lost, when the snap occurred.* This is abundantly proven by the results of treatment directed toward the re-establishment of the normal plane of the membrana tympani. It has been shown that the inflation of the tympanic cavity gave negative results, even augmenting the symptoms if any considerable pressure was used; while, on the contrary, the aspirating otoscope gave immediate relief from annoying subjective symptoms. The absence of the intra-tympanic adhesions and spasm of the t. tympani muscle having been demonstrated, an augmentation of the subjective symptoms could have been due to no other cause than the absence of the *stapedian curb*, thus permitting an exaggerated presussure from without inwards and a condensation of the intra-tympanic air, resulting in a profound disturbance of the labyrinthine elements.

It is thus seen that as long as such inward pressure obtains, just so long will the *sound conducting labyrinthine* contents continue to exercise a perverted function and the floating terminal hair-cells and the basilaric fibres receive a false tone-image corresponding to the degree of compression exercised upon the labyrinthine fluid, whose natural channels of escape are inadequate, during the existence of the normal physiological supply, to establish compensatory egress.

Thus, in this instance, it would follow that the compressed sound-conducting fluid of the labyrinth is immediately responsible, for the altered character of certain sounds, the muscle lesion being the causative factor. Owing to the *spiral* nature of the structure in which this compression takes place, the force of impact of the contained fluid becomes less (granted a *moderate* degree of compression) during its ascent, so to speak, toward the

apex, on account of resistance it encounters from *abruptly curved walls*. In other words, a relative inhibition of energy in the molecular impact takes place as a result of continued abnormal propulsion in a spirally-compressed fluid, the increase in pressure causing a deviation from the curvilinear direction *normal* to the fluid contents of the structure. The reverse would obtain in a conical or a planopyramidal structure, for in such a case no *abrupt deflection* would interfere with the necessary augmentation at its distal end of an energy travelling in straight (or curved) lines. Should any *great* compression, however, exist in any of these structures, supposing each to possess a delicate percipient apparatus such as the *m. basilaris*, its *continuance* would cause a total obliteration of the function of that portion of the apparatus to which the greatest pressure was applied, and a mechanical perversion of function in the other portions, varying according to the degree of compression. It would thus seem that the degree of variation for a given tone in the scale will depend upon the degree of compression existing in a certain area in a corresponding turn of the cochlea.

In Case I it will be seen that this hypothesis is borne out in that the highest tones do not show as great a departure from the normal, owing to the greater velocity of the wave impulses and to the situation of the short fibres, as do the lower tones which are perceived in the upper turn of the cochlea and which become modified in the manner described. No other hypothesis would explain why in this case the lower tones are heard *lower*, and the higher tones *higher*, in the affected ear; for, although there is an *absolute* increase (in volume) of intra-labyrinthine pressure, the very velocity imparted to the wave-impulses in the lower turn of the cochlea becomes the instrument of their destruction, resulting in an *actual diminution of tension* and a consequent lowering of tone in the upper turn. Further proof of this proposition is seen in the re-

sult of the examination of May 10th, all tones having become more nearly normal as a result of diminished pressure.

It is interesting to note that in the majority of the very few recorded cases of pseudokousma, whether existing alone or associated with a diplacusis, it has been found that a difference in tone-perception has existed only for aerial-conduction, the same pitch being found with bone-conduction on both sides. *Gruber* reports a case of *Blau* of suppurative middle-ear disease of the *right* side, where the tone of a tuning-fork was heard from one-quarter to one-half a tone *lower* by the *right* than by the *left* ear, while with bone-conduction they seemed to be of the same pitch on both sides. Some time after the perforation healed, a normal perception of pitch returned. An exception is found in *Burnett's* case, the difference obtaining only when the fork was applied to the *mastoid*.

Bishop records a case (probably non-suppurative) where "certain tones were incorrectly heard by one ear (both ears being similarly diseased) all tones being correctly heard by bone-conduction." While the writer is under the false-hearing is impossible *for one ear only* when both ears are *similarly* diseased, it is evident that the condition obtaining in these two cases must be considered as involving only the structures of the middle-ear proper, the mastoid being probably normal. On the other hand, where a comparison between the two mastoids reveals a marked difference in the perception of tone, this difference corresponding exactly to that perceived by aerial-conduction, the only rational conclusion to be drawn is that the lesion responsible for the altered character of the transmitted sound is located not only in the structures of the tympanic cavity, but also in the mastoid, whose osseous conductivity or resonating function has become impaired during, or subsequent to, the establishment of a pathological process within the middle ear.

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A STUDY OF THE HEMOPTYSIS OF CARDIAC DISEASE.

BY ROLAND G. CURTIN, M. D., PHILADELPHIA, PA.

In considering the symptoms observed in cardiac disease, it occurred to me that something might be learned by making a study of the hemoptysis, which sometimes occurs in such cases. On looking over the literature of this subject, I find that very few causes of this symptom are mentioned; but I am satisfied that it occurs as the result of more conditions than those usually given in books on diseases of the heart. The results of the observations that I have made, I shall try to formulate into a paper that may assist us in our diagnosis and prognosis.

As to the frequency of bloody expectoration in heart-disease, authors differ greatly. Dr. Hayden states that hemoptysis was present in 44 out of 81 cases (54.3%) of marked mitral disease. This seems incredible to me; for after close interrogation and watchful care, the percentage in my cases is very much less than in those of Dr. Hayden.

A study of the circulation of the lungs, bronchial tubes, and membranes will be necessary, in order that this symptom may be properly considered. The blood circulating within the lung is derived from two sources and is concerned in two separate and distinct functions. The first is that supplied by the pulmonary artery. These vessels, accompanied by veins, bronchioles, nerves, and lymphatics, traverse the interlobular connective tissue, finally ramifying among the air-tubes and enveloping them with the densest network of blood-vessels to be found in the body. While adjoining infundibulae are sharply outlined and are separated from each other by distinct connective-tissue partitions, the interalveolar septa are composed only of the two layers of respiratory epithelium,—the above-mentioned capillary network,—the whole being supported by the most delicate framework of connective tissue. This vascular scheme is concerned solely in the aeration of the blood from the right heart.

The nutrition of the pulmonary structures is maintained by branches of the bronchial arteries, which receive their supply from the left ventricle. These accompany more or less closely the bronchial tubes; and, through minute branches, supply the walls of the air-passages, the interlobular areolar tissue, and the parietal pleurae. (Piersol).

Here we have two sources of blood in the lungs and bronchi from which may come a pulmonary hemorrhage. Bleeding from the bronchial mucous membrane has been called bronchorrhagia; and hemorrhage from the blood that is passing through the lungs to be aerated is denominated pneumorrhagia. The bleeding from the bronchial mucous membrane is most likely to be the result of a congestion of the bronchial mucous membrane, or of a condition of the blood that favors hemorrhage

from that, as well as other mucous membranes. The bleeding from the lung-structure proper—that is, the air vesicles, may be caused by a stasis of blood, which may be due to the constriction of an orifice in the heart, thus retarding the blood in the lungs, or to a partial cessation of the action of the heart, so as to produce a stoppage of blood in the lungs, thereby causing a congestion and an escape of blood through the lining membrane of the air vesicles. A case of pneumorrhagia may be facilitated by a condition of the blood, as in hemophilia, that allows it easy egress from the vessels adjoining the air vesicles.

Everyone that has studied cardiac disease will, I think, agree with me that the most common cause of hemoptysis from heart disease is mitral constriction. The blood, being interfered with at the mitral orifice, is dammed back into the pulmonary veins, where there are no valves to interfere, increasing the pulmonary blood pressure. This congestion may produce exudation of the blood. Any very sudden retardation of the action of the heart may also bring about this condition of affairs. Acute mitral regurgitation may have the same effect as mitral obstruction. The blood, not being carried forward in its natural course, is regurgitated into the left auricle and backed upon the lungs. Again, I am satisfied that dilatation of the left ventricle, when coming on acutely, or acute myocarditis may have the same effect. It has likewise been found by observers that dilatation of the right auricle and right ventricle may produce bleeding from the lungs. This, I am inclined to think, is due to pulmonary hemorrhagic infarction, I am quite sure that any condition of the heart that favors pulmonary hemorrhagic infarction may cause the spitting of blood from the lungs. Hematophilia may play an important part in the hemorrhage occurring with the different forms of heart-disease mentioned. Anything that produces pulmonary

congestion may increase this tendency to hemoptysis—either bronchorrhagia or pneumorrhagia. I have frequently noticed hemoptysis in congenital disease of the heart; that is, both patulous foramen ovale and interventricular openings.

Excluding mitral disease, probably the most frequent cause of hemorrhage is rupture of degenerated blood-vessels, brought on by any increase in blood-pressure. The backward tendency of the blood produces pressure upon the brittle blood-vessels, which may be ruptured, causing pulmonary hemorrhagic infarction, if the ruptured vessels are superficial; a mere oozing of blood, producing a slight blood-red or pinkish colored expectoration, when then these vessels are deeper seated.

There is one condition likely to be associated with disease of the valves of the heart that may produce hemoptysis; that is, a slowly-rupturing aneurism of the aorta. I call your attention to this fact, because the bleeding may at first be very slight. If one is not careful he may give a favorable prognosis in such a case, to be immediately disproved by the rupture of the aneurism and the death of the patient. I am cognizant of two such cases that occurred in the practice of friends.

The first question to be settled is that of the origin of the bleeding. In ordinary congestion of the bronchial mucous membrane, there is likely to be an expectoration of streaked blood, if the amount of blood is not great; but the diagnosis is more difficult when there is profuse bleeding, as the result of "bleeders' disease" affecting the bronchial mucous membrane. The blood from the lungs proper is usually seen, as in cases of the earlier stage of pneumonia, to be quite bright at first; although later, it becomes darker. This kind is familiar to you all. In cases of chronic dilatation of the heart, the blood expectorated is usually very dark purple. It may

be in rounded, brownish-black masses, with a glazing over them; as if they were enclosed in a transparent mucous coating, looking not unlike leeches in a contracted state. The rest of the expectoration is clear, being entirely free from any discoloration. Another form of blood-spitting is to be found when there is sudden acute congestion of the lungs from heart-disease. In these cases, large quantities of pinkish froth are often expectorated. This produces great apnea, and sometimes a speedy death; not so much from the loss of blood, as from the presence of the frothy fluid accompanying it. The patient is, as it were, drowned.

In the cases of mitral constriction, reported in a paper read before the American Climatological Association in 1881, I called attention to the fact that there is a tendency, in some cases of lung trouble of a chronic form, to hemoptysis of a dark color and to night-sweats. The lesions of the lung in connection with these cases is usually on the left side of the chest. In one of the cases there quoted, the patient, a married woman, thirty-six years old, the mother of six children, had had easy labors, without any unusual symptoms. There was no history of rheumatism, but she had been a quiet child and easily tired. At times, her lips became blue, and her heart weak; and she had night-sweats. These attacks were followed by slight hemorrhages of dark blood. Upon auscultation, I found a presystolic murmur at the third left interspace above the breast, toward the apex of the lung, which was found to present evidence of decreased expansion, with a diminished respiratory murmur.

Another case reported in that paper concerned a man that had worked in the gas works during the day, and had employed his evenings on the Schuylkill River with a boat club. He was training with a crew for a race, but he was soon compelled to stop and apply to me for treat-

ment. I found him with a red, turgid skin; blood-shot eyes; general trembling of head and extremities, frequent attacks of hemoptysis, of bright-red blood; a rapid heart, and quick respirations. I made a diagnosis of acute dilatation from over-exertion. There was a diffuse murmur above the nipple and a strong cardiac impulse. After a month's rest, all the symptoms and physical signs had subsided; but they returned in a milder form, upon active exercise or any long continued and exhausting labor.

Another case, that of a young man, twenty-six years old, was reported in the same paper. His father had lived a dwarfed life, and had what was diagnosticated to be congenital disease of the heart. This disease produced cyanosis whenever the weather was damp or cold. He died, at about middle life, with exhaustion, cyanosis, and great dyspnea. His son, my patient, had always, as a child, played with girls, making mud pies and taking part in quiet games. He could never stand the racket of boys' plays. From earliest childhood, exercise had been followed by thumping of the heart. If continued after this, it would produce dyspnea and sick headache; and he would then be compelled to take a rest, owing to what seemed to be nervous prostration. He had to have nine hours of sleep at night and a nap during the day, in order to keep from feeling tired and good-for-nothing. In 1892, he broke down, while preparing for college. He then went to the seashore and led a quiet, restful life. At the end of two years he had become rather fleshy, and had the appearance of perfect health. The presystolic murmur about the nipple was heard only after exertion, with a strong auricular impulse and an accentuation of the second pulmonary sound. He has had hemoptysis several times, with his attacks of "deranged heart." The blood expectorated is always dark purple, and is limited to isolated spots in the sputum.

These cases show that mitral constriction is likely to be followed by chronic, non tubercular lung disease of the left side; and by attacks of hemoptysis of dark-colored blood, whenever the circulation is greatly disturbed. I have recently seen a woman, forty-seven years old (the mother of one child), who has had rheumatism. She never had any particular symptoms of heart-disease until two and a half years ago, when she took a headache powder. Her husband, a doctor, came home and found her in bed, with blue finger tips and lips, and with marked dyspnea. Later, she had an attack of difficulty in breathing. Since that time she has probably had fifty similar attacks. In some of them she has had considerable expectoration of dark colored, almost black, blood. In this case it would seem as if the nervous depression had influenced the circulation sufficiently to cause bleeding from the lungs; for the patient had no heart murmur or other evidence of organic lung or heart lesion.

Last December (1904) I saw a case of dilatation of the heart in which nitroglycerin seemed to have caused the patient to spit blood. This hemoptysis came on several days after the drug had been first administered and continued for two weeks. Upon the withdrawal of the nitroglycerin, it ceased. In connection with this case, it occurred to me that perhaps this or other remedies might in some instances have the effect of producing hemoptysis. I have had three cases in which the use of potassium iodide had caused blood spitting:

Miss C., with a marked mitral systolic and an aortic systolic murmur, had symptoms of acute dilatation of the left side of the heart, followed by an intermittent pink-tinged expectoration, almost daily for four weeks. She is now in quite good condition, a year later.

In cases of heart-disease accompanied with blood spitting, if the latter is not profuse, and if the heart-

disease itself is not acute, the patient sometimes feels greatly relieved after the bleeding, as though a safety valve had been lifted. If the heart-disease is acute and the blood is pure, the prognosis is bad. If the blood is bright red and quite profuse, the prognosis is much more favorable than it is when the blood is dark or purple, showing it to be stale from a slow oozing. If the bleeding is caused by a condition of the blood engrafted upon a previously existing heart-disease, the prognosis is not so serious. Death is seldom, if ever, produced by a profuse hemorrhage from this cause alone. A disordered condition of the blood, favoring extensive hemorrhage, is usually the exciting cause of profuse hemorrhage in heart-disease. In such cases, therefore, we have a double equation.

My observations of hemoptysis in cardiac disease have impressed me with the importance of making a study of the blood expectorated. I feel convinced that further investigation of this kind will yield valuable information. We all know the current jelly sputum of cancer of the lung; the prune-juice sputum of a serious pneumonia; the brick-dust color of the mucopurulent sputum of spasmodically advancing, chronic lung disease, and the pink-tinged, frothy mucus of the suddenly arrested circulation in congestion of the lungs. In the same way, I think, we shall be able, by studying the blood expectorated in cardiac disease, to learn much that will be of value in diagnosis, in prognosis, and, perhaps, in treatment.

GLIOMA OF THE NOSE

REPORT OF TWO CONGENITAL CASES. BY J. PAYSON CLARK,
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“The glioma is a tumor consisting of proliferated neuroglia (the supporting tissue of the central nervous system) and of bloodvessels which are accompanied by a small amount of connective tissue.” Mayory says further in the article from which the above quotation is taken, that it is found exclusively in the central nervous system of which it forms the commonest tumor, that it is essentially a benign growth, does not give rise to metastases, but is dangerous partly on account of the pressure it exerts, partly from destruction of the nervous tissue it infiltrates. On account of its vascularity, large and small hemorrhages are not infrequent. Mallory also says:

“Gliomata of the retina have not been discussed in his article because no one has yet shown by modern



Glioma of Nose. — Photograph of Case I.

differential stains that they occur." In this connection the following quotation from Ohlmacher is pertinent:

"Most of the so-called gliomas originating in the retina especially in children, are in reality a form of round-cell sarcoma with pronounced metastatic tendencies, which glioma lacks." Other writers, as Senn and Bland-Sutton speak as if the existence of glioma of the retina in childhood were established. Senn mentions glioma as having been found in the acoustic nerve and as a heterotopic tumor, in the kidney, the ovary and the testicle.

There seems to be some difference of opinion, therefore, among writers on this subject, as to whether or not true glioma ever occurs outside the brain or spinal cord. But no writer denies that the appearance of this growth anywhere except, in the regions just mentioned is very rare. In view of these facts, the two following cases would seem to be worth recording as of unusual importance and interest.

Case I. Edward K., aged two years, of American parentage, was brought to the Throat Clinic of the Massachusetts General Hospital in April, 1903 on account of a rounded tumor of the nose about the size of a robin's egg, which his mother said he had had from birth and which caused considerable deformity, as the photograph shows.

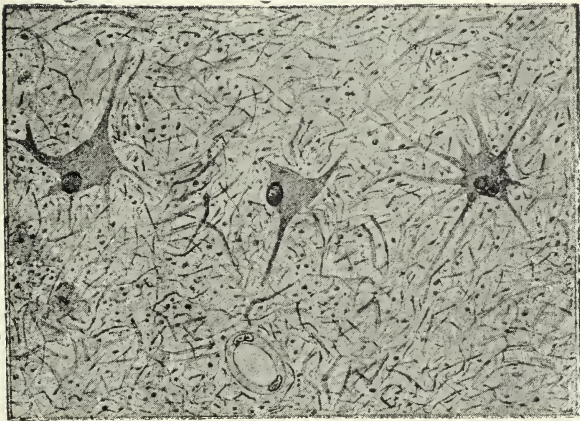
The tumor was soft to the touch and resembled very strongly in appearance and consistency a fatty tumor. There was no pulsation in the swelling nor any change in its consistency when the child cried, so that, although its site and general appearance suggested a possible meningocele, it was assumed as reasonably certain that, at the time the child was seen the tumor had no direct connection with the brain cavity. On looking into the nose, the left nostril was observed to be almost comple-

tely obstructed by a pinkish-gray, polypoid growth, the origin of which could not be definitely determined, although its connection with the external tumor could hardly be questioned. A piece of the growth was removed from the left nostril by means of cutting-forceps. Hemorrhage was free but ceased quickly. This specimen was submitted to Dr. J. H. Wright, Director of the Clinico-Pathological Laboratory of the Hospital, who made the following report: "Microscopical examination of the specimen sent for examination shows that it consists of a piece of tissue partly covered with mucous membrane. The tissue making up the greater part of the specimen consists chiefly of delicate fibrils and peculiar cells and is clearly a typical neuroglia; as shown by its histological appearance and by the staining reaction of the fibrils. This neuroglia tissue near the mucous membrane gives place to submucous connective tissue, but is not sharply marked off from this connective tissue. In fact it is seen infiltrating the spaces of this tissue after the manner of a sarcoma.

Diagnosis; as far as the specimen itself goes, the condition is to be regarded as glioma. The glioma may be in continuity with the brain, but it seems to the pathologist more likely that it is associated with a teratomatous tumor in the neighbourhood." (Signed)

J. H. WRIGHT.

(See figure 1).—In view of the unusual character of the growth and the uncertainty of the prognosis it was decided to keep the child under observation for a time before undertaking to remove the tumor, if that was eventually thought advisable. The photograph was taken and the mother was told to bring the child again at a stated time. But she never returned and no answer could be obtained to several letters. As the case was



Case 1.—Edward K. High power drawing from a paraffine section of the material removed by operation, showing the character of the tumor tissue which is composed of fibrills and "spider" glia cells.



a much too important one to be entirely lost sight of, the writer finally made a trip to the city where the patient lived, about twenty-five miles from Boston, and after some difficulty, owing to the family having moved, found the boy. It was learned that he had been operated on at a local hospital on June 23 rd, 1904. The tumor had evidently been removed, as the nose was normal except for a rather unusual breadth and a rather prominent linear, nearly vertical scar, about two c. m. in length. The general health of the child appeared excellent and there was no local evidence of any new growth.

Communication with the hospital where the tumor had been removed elicited the facts that it had not been preserved and that no microscopical examination had been made of it. Nor could any description of the gross appearances at the operation be obtained.

Interesting as these reports would have been in completing the history of this case, the diagnosis is sufficiently established by Dr. Wright's report.

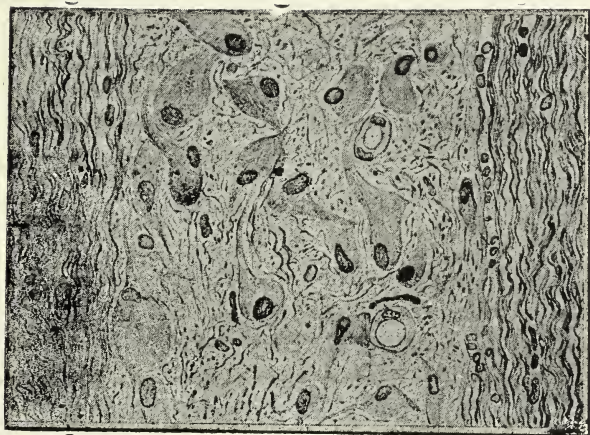
The second case was first seen at the Throat Clinic of the Massachusettes General Hospital on December 21st. 1903 by Dr. Frederic C. Cobb, who was then on duty, and he very kindly referred it to me.

Case II.—William A. M, boy, ten weeks old, was brought to the hospital on December 21st. 1903. The father said that the child had not breathed well through the nose since birth and that the child had noticed something in the left nostril. The infant appeared in excellent health and took its nourishment well except for the inconvenience caused by partial nasal obstruction. On examination a pinkish-gray polypoid mass was seen in the left vestibule, causing almost complete obstruction of that side. The site of the growth was higher up in the nose and, as nearly as could be discovered, owing to the difficulty of seeing into so small a nostril, appeared

to be the septum. A piece was snared off for microscopical examination. Hemorrhage was free but easily stopped by slight pressure. The pathologist's report on this specimen and on another removed in February 1904 was as follows: "On December 21st. 1903 and On February 29th. 1904 small pieces of tissue were excised from the lesion on the nasal septum. Microscopical examination of both these specimens shows, in the situation of the submucosa of the part, masses of a peculiar tissue which has the structure and staining reaction of a gliomatous tissue. The tissue consist of cells and fibrils in varying proportions. Some of the cells are quite large, have excentric nuclei and fibrillary processes. This gliomatous tissue in places appears to infiltrate and distend lymph spaces, and columns of it may be seen in the submucose very near the mucous membrane proper." (Signed) J. H. Writht.

(See figure 2). Another specimen was removed on April 20th. and was reported to be practically the same as the first. No photograph of this patient was taken because there was no external deformity. At the date of writing this paper in 1904 this child is in excellent health and there is no apparent increase in the growth.

These are certainly genuine cases of glioma outside the central nervous system. They resemble each other closely in every particular except that in one there was an external deformity. They were both evidently of parental origin. It is unfortunate that no record of the operation in Case I could be obtained, for it might have cast some light in the source of the tumor. The writer is inclined to the opinion that these growths arose, during the process of foetal development, through the shutting out of or, more exactly that embryonic tissue which becomes neuroglia some neuroglia from the brain cavity in the coming together of the two lateral halves of the bone. In



Case II.—Wm. A. M.

High power drawing from a paraffin section of the material obtained by operation, showing part of a column of gliomatous tissue infiltrating the submucous connective tissue. The tissue, composed of the paler fibrills and the large pyriform cells occupying the middle of the drawing, is the gliomatous tissue. The darker fibrills on each side of the drawing represent the connective tissue of the submucosa.

both cases, as far as the histories go, the tumor appears to be absolutely benign. In the first case the tumor had not changed in size from birth up to two years of age, according to the mother's observation. It was removed six months ago, nearly, and there is no sign of recurrence. It is about a year since the other case was first seen. During this time the growth has shown no apparent increase. The writer will endeavour to keep in touch with these cases, and if there are any new developments, he will report them. A thorough search of medical literature for a period of more than ten years past reveals no other reported case of the nose.

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Electricity in the treatment of pulmonary tuberculosis.

FRANCIS B. BISHOP M. D. WASHINGTON, D. C. U. S. A.

One agent after another and one method after another have come upon the scene, and have been lauded for awhile as the great cure for that disease which for centuries before the christian era invaded all classes often plucking in the budding the brightest and sweetest blossoms of the human race. We are learning much more concerning the etiology, pathology and treatment of this terrible plague,—consumption. All are now fully agreed that (medicine or no medicine) the nearer to nature the patient can live, the more thoroughly he can live in the sunshine and fresh air subsisting upon simple and nourishing food the better are his chances for recovery.

Exercise, fresh air and sunshine—this is the remedy which nature supplies in the greatest abundance. And to this altitude sufficiently high to considerably relieve air

pressure from the cramped and weak chest walls, and dry enough when inhaled into lungs (now able to distend) to convey its allotroic oxygen, thereby stimulating into renewed energy the flagging vitality, we still further add to our patients chances of recovery. Even this method does not cure all cases, but produces the largest percentage of cures.

Electricity in the form of the static convective discharge comes nearer the place of altitude than any other known agent, and in these cases the results are almost always beneficial and often brilliant in the extreme. In the static discharge we have many of the visible and invisible rays to which the solar system is supposed to owe its healing properties. We have in static electricity a mode of molecular motion which sets into action every atom and molecule of matter within the electro-static field. We have in static electricity a chemical agent which breaks up the atmospheric air into its constituent elements and as effectually attracts to the positive pole the atoms of oxygen (thereby producing ozone) as does the galvanic battery decompose water attracting the oxygen to the positive pole. What does this all signify? Simply this, we place our consumptive patient in a strong electrostatic field, the patient (either lying down or sitting) represents the positive pole. The negative is represented by a large cage or wire netting from the inside of which tinsel brushes are hanging.

When attached to a large machine and the machine set in motion, the allotropic oxygen gathers around the patient attracted by the positive pole of the machine. The patient is compelled to breathe this atmosphere, fully and thoroughly charged with ozone, and as he exhales carbon dioxide it is repelled, cast away, and falls below him, he is left in a pure light atmosphere where his lung capacity may be increased and his blood fully supplied with oxygen.

At the same time the molecular activity of the body is the same as that of the static electricity, every atom and molecule charged to the capacity and intensity of the machine is absorbing oxygen and expelling carbon dioxide; in other words metabolism is quickened. The patient feels at once the stimulating and sedative effect, he breathes easier and is exhilarated, yet, after a few minutes he will often fall into a quiet slumber awake refreshed and always ready and anxious for the next treatment.

The history of the following case has been so well described by the patient, as well as her experience while taking treatment I venture to incorporate it into this essay, notwithstanding the fact the case has been reported in a former paper.

In 1892, I suffered from nervous prostration, after that, repeated attacks of grippe and colds verging on pneumonia, brought me to such a state that in February of 1899, Dr. Parsons sent me to Florida on account of threatened lung trouble.

In January, 1900, I had pneumonia, followed by grippe, and, therefore, a settled irritation in right lung manifested itself. Digestion was poor; I lost flesh and strength. I consulted Dr. F. B. Miner, who found some difficulty in both lungs. Dr. L. E. Rauterberg also found the same difficulty. Later, in the latter part of July following some trifling exposure, I had a severe cold settle on my lung and here came my final break down. When past the worst of the attack, emaciated and barely able to walk, I went to your office. This was in August. You located the difficulty in right lung, and while not discouraging me it was plain that you did not wish to undertake my treatment. Your advice was to seek another climate, which was coincided in by Dr. Hyatt, who, on three subsequent examinations, found the same difficulty in right lung, beside some throat trouble.

I commenced your treatment in October, 1900, on my own responsibility and with slight encouragement from you as to results. Within a few weeks I was conscious of improvement. The ozone was delightful to breathe; there was in it that which seemed at once to rest and strengthen the lungs, and I found a marked stimulus in it and the electricity combined; but the most significant feature was the diminishing cough and the changed character of the expectoration. That it was due to the treatment was shown by this circumstance. After being treated three months, I remained away for a month or six weeks, when without taking cold, the old trouble reappeared, preceded by the familiar throbbing pain. During another time when my visits were irregular this experience was repeated but after each return to the ozone the symptoms grew less severe, and in January, 1902, I resumed the clerical work from which my illness debarred me for nearly seventeen months; I took treatment for a few weeks, and then feeling so well, remained away.

As the weather grew warm, I felt considerable debility, and in September went to Lananac Lake. There Dr. Trudeau examined my lungs. He found the principal trouble then to be bronchitis. He remarked, there was nothing strong about me; that I was weak in every way; there was some difficulty in the left lung and a place in the right lung that had healed.

He did not consider it necessary for me to give up my work.

During my long illness I had fever, night sweat at times and often utter exhaustion. I had set backs from other causes that would necessarily lessen my strength and retard recovery. I have taken some medicines, but so irregularly I could scarcely be benefited by them. Actual gain is shown by the contrast between my present and former conditions. When I went to Saranac Lake, I

could perform a certain amount of work then, as now, a gain in flesh, increase in muscle and a better outlook upon life generally. Could I have taken your treatments without interruptions, I believe I should have been absolutely well months ago.

Sincerely yours,

M. P. B.

Three other cases equally as bad have been as successfully treated since. One of my early cases, a gentleman of about thirty, after taking the cage treatment for a while missed his cough, night sweats, and malaise, gained several pounds in weight. His family fearing that his improvement was only temporary persuaded him to go to Ashville North Carolina. He staid there for several months, and lost ground rapidly, from there he went to New Mexico, where he died in about six months after reaching his destination. I do not pretend to say that he would have been cured had he remained in Washington for treatment.

A woman thirty years old with a family history on the fathers side of tuberculosis, having lost several members of her family from that disease, came under my care with loss of appetite, malaise, night sweats, cough and dullness in apex of right lung.

Three months daily treatment in the static cage, so far as all physical signs were concerned cured her. She remains cured after three years. In the light of our present knowledge static electricity should be faithfully used in all these cases whatever be the medical and sanitary treatment.

FRANCIS B. BISHOP M. D.

1913 I. S.—N. U.

Washington D. C. U. S. A.

REMARKS

ON THE DIFFERENTIAL DIAGNOSIS OF LARYNGEAL TUBERCULOSIS AND OTHER CHRONIC LARYNGEAL AFFECTIONS.

Mr. President and Gentlemen:

The subject of this paper is one which will necessarily interest all general practitioners as well as laryngologists. Perhaps there is no region of the body (excepting the abdomen) where there are as many liable opportunities for making mistakes in diagnosis, as the larynx and thorax. In distinguishing the early stages of laryngeal phthisis, "and the various malignant diseases from the different sorts of benign laryngeal diseases, the most experienced persons in the art of laryngoscopy are very often puzzled and liable to make a blunder.

Take, for instance, some of the forms of non-malignant and non-infective chronic laryngitis with or without hyperplasia, which, as you know, may and do frequently endure years without giving rise to a more serious malady. Hyperemia of the whole or a part of the internal laryngeal surface, accompanied by either altered, diminished

or increased secretion, may exist without much, if any, structural change being apparent. This condition may be accompanied with more or less hoarseness, verging upon extinction of the voice (aphonia), or various degrees of dysphonia, etc., which by persistence may justly excite the suspicion of an impending tubercular or malignant affection.

Again, let us consider those cases of chronic laryngitis denominated "hypertrophic", characterized by more or less hyperplasia situated either in the upper or lower laryngeal region, or in the laryngeal ventricle, and showing either localized or rugous hyperplasia. How often do we, meeting with these conditions, impulsively conclude that affection must be malignant, tubercular, or syphilitic. Yet by carefully investigating the clinical history, and perhaps testing by histologic, bacteriologic and therapeutic expedients, we shall prove that they are benign cases. Even with a picture before us of arytenoid or posterior wall infiltration of the larynx, can we always say that the case is one of tuberculosis? Hence, it becomes requisite to exercise the greatest care and circumspection in the examination of the patient, and the patient's antecedent history, before coming to a diagnosis in cases of suspected tubercular nature. The larynx should be examined by an *expert laryngologist*. This it seems to me is a necessary measure, as is also the exploration of the chest by an *expert (and not too imaginative) auscultator*. I desire to emphasize this point because we know that the art of laryngoscopy and the art of physical exploration of the chest does not consist alone in the dexterous manipulation of the laryngoscopic mirror or the stethoscope and percussion hammer. To perceive and to individualize what one sees in the image presented by the laryngoscopic mirror, and to perceive and individualize what one hears through a stethoscope and by a percussion hammer, is really what constitutes the art embraced by these particular manipu-

lations. Added to this and paramount with it, may be mentioned the art of clinical observation, and the adjustment of the same through the reasoning faculties, to the signs and demonstrations elicited by immediate or sensory examination. I beg pardon for calling attention to such platitudes as the above mentioned, and plead as a reason therefore to offer the following aphorisms:

Of the many million human beings all nationalities living, there is a strikingly uniform physical and psychical similarity, which we all must admit. But at the same time an antithesis must be admitted, inasmuch as this resemblance is scarcely ever found to be exact, so that broadly speaking each individual may be found prepossessed of both physical and mental peculiarities. This constitutes one of the most annoying circumstances in the course of generalizing, and occurs often enough to constitute one of the most significant barriers to the work of all students of natural science. Moreover, in no class of work is this *individualism* more constantly appearing than in that of the scientific physician or surgeon. It is to this fact that experience as well as demonstration becomes a necessary complement, and to the carelessness its recognition of is traced much of the controversy and error incident to the practice of, not only our own, but every other human art. Now, this individualism is especially to be observed in the practice of the art of laryngoscopy and physical exploration of the chest. Let one well versed in either or both of these arts examine one hundred uncomplaining or so-called healthy individuals and he will soon be brought to a realization of this fact—especially if he will erase from his mind, at the time, all imaginative prejudice. Looking into the larynx, for instance, he will observe peculiarities of color of the mucous membrane; of form; of consistence; of superficial or deep structural appearance, and of the secretion in nearly each individual examined. Many of these appearances might present to the

inexperienced examiner positive evidence of an unhealthy condition. Likewise, in auscultation of the thorax peculiarities of amplitude, of quality, and of rhythm in the respiratory sounds will be found peculiar to almost each individual.

From these results, therefore, the deduction is to be made that the artist must become so expert that he can readily perceive normal abnormalities by his own consciousness of a standard of comparison instead of a formula. For example, a man or woman with a most artistic instinct who could take in, and enjoy, all the details of a magnificent picture (such as a Raphael) would scarcely expect to be able to produce its analogue, without a long training in artistic experience and the possession of an intuitive, practical aptitude. The same idea would apply to the subject under consideration—namely, the importance of the application of the artistic, as well as the scientific, branch of professional activity. It is to emphasise this point that I have burdened you with so much verbiage, and I have done so because there are so many cases of chronic laryngitis of various shades and degrees caused by or associated with disorders of the stomach, of the heart, and other organs and apparatus, or as a result of excesses and irregularities of living, such as over eating, over work, excessive use of tobacco or over use of the voice, which are erroneously diagnosed as tubercular, syphilitic or malignant affections. In many of these cases a supposed confirmation of the diagnosis has been found in a physical exploration of the chest when really no lesion of the lungs or heart has actually existed.

We are surprised at times to meet with cases which confreres,—who are our peers or superiors perhaps, in scientific attainment,—have positively diagnosed as tuberculosis without ever having made a proper laryngoscopic examination. We believe, of course, that this does not

take place often, nevertheless it occurs often enough to merit warning. Mistakes in the opposite direction are likewise frequently made, when cases of latent syphilis or tuberculosis pass for a considerable time unrecognized. The frequency of such occurrences would tend to stimulate those of moderate experience to a tendency to emphasize and amplify these etiological factors. It is obvious that these remarks, of course, do not apply to fully developed cases of disease.

The question now arises, can rules, or principles based upon scientific investigation and clinical observation be formulated for positively distinguishing all cases of chronic laryngitis from the other different diseased conditions of the larynx in the early stages of their manifestation? To this we must, with humiliation, answer, no! Because a case of chronic laryngitis may present any of the following subjective or objective signs:

SUBJECTIVE.

Pyrexia.—on account of some other intercurrent affection of organs or nervous system, or pyo-salpinx.

Enlarged cervical glands—from previous diseases or injury.

Hoarseness, or *dysphonia*—congenital or symptomatic.

Pain,—localized or diffuse.

Cough,—slight or severe.

Dyspnoea,—in artero-sclerosis and neurosis.

Secretion,—altered, diminished, or increased.

Hemorrhage,—slight or quite profuse, as in hemophilia, naso-pharyngeal fibromata, abrasions, traumatism.

OBJECTIVE.

Intense or moderate hyperaemia, diffused or circumscribed.

Anaemia—constant or intermittent, when complicated with central nervous diseases or Bright's disease,

artero-sclerosis, oedema of the lungs, or conditions of vaso-motor spasm or venous stasis.

Hyperplasia—circumscribed or general, papulous or laminated, or rugous, in cases of alcohol or tobacco addiction; carcinoma and other diseases of the stomach; over use of the voice; excessive auto-mobile riding, etc.

Hypertrophic tumefaction—as in acute exacerbations, arterio-sclerosis, oedema, whooping-cough.

Simple tumefaction—long continued pulmonary oedema, whooping-cough, sequel of measles and other exanthemata, diphtheria.

Temporary paresis—as in ataxias and other neuroses

Abrasions—as a result of vocal strain, inhalation of strong fumes, or as a result of debauches.

In conclusion, therefor, it seems obvious that the early stages of such cases showing symptoms referable to the air passages that the diagnosis should be constructed upon a thorough expert examination of the upper air passages, as well as the thorax, and a complete investigation into the clinical history of the case in reference to each and all the functions of the body. To this, of course, must necessarily be added not only an examination of the sputum, but of times of the blood and perhaps parts of the apparently diseased tissue of the throat. Absence of tubercle bacilli, pneumococci, or other micro-organisms, or the absence of any detritus or exfoliation from the part involved is not alone sufficient to base a differential diagnosis.

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MODERN THERAPEUTICS. (1)

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The tendency of modern therapeutics is toward making use of all measures which tend to the cure of disease, physical as well as pharmacal, and to place reliance upon no single method. While physical therapeutics may seem to be more prominent at the present, it is because the same scientific methods of investigation are being applied as to the study of drugs.

Climate.—There come a complete realization that the ideal climate for any disease can not exist. For instance, in the treatment of pulmonary tuberculosis, a dry and equable climate is desirable. But a dry climate can never be equable,—a simple proposition in elementary physics,—therefore, treatment by climate only is doomed

(1) Read at the Fourth Pan-American Medical Congress of Panamá, 1905.

to failure as well as treatment by drugs alone. In this, as in many other instances, a careful study of climate has resulted in declaration of its limitations, and the limitations must be recognized and provided for.

Mineral Springs—Here again, intelligent study has done much to do away with the routine work of the bath-physician and the astute empiricism of centuries is giving place to a well wrought out system of therapy, based on special knowledge of the chemical contents of the waters, joined to general medical information. Besides the chemistry of mineral waters, there has come a great advance in our knowledge of the physical chemistry of such solutions and the study of various radio-activities as are associated with mineral waters is opening up another and probably a brilliant chapter in internal hydrotherapeutics.

In hydrotherapy there is but little that is new. Most novelties claimed as such are merely a re-vamping of the old. Curiously enough the practice remains unchanged while the theories upon which it is based have been either abandoned or modified.

The Currie-Jurgensen (so-called Brand) bath, for instance, is no longer used with the idea that it reduces fever, or is a general nervous stimulant, but it is rather employed for the purpose of eliminating various toxins by way of the kidneys.

Electricity.—This is no longer looked upon as a cure-all, but definite indications for its employment are well recongnized. The high tension electricity, as developed by Morton in this country, and the use of high frequency currents, have made electrotherapeutics a much more important chapter and with a much more rational basis than before. The effect of electricity upon the blood vessels and the consequent stimulating effect on blood pressure are now well known and show the lines in

which this department is going to develop. Static electricity is no longer used merely empirically, but has a definite set of indications, and can be made, under proper conditions and with appropriate direction, to give definite results.

Roentgen ray therapy is yet in its infancy, but when sufficient time has elapsed that its power for good or evil upon processes and tissues, whether physiological or pathological, shall have been determined, its capabilities will be thoroughly understood. At present its future seems bright.

Diet.—Here too, distinct advance has been made. The prohibition of red meats in gout and purinaemia is now known to be based upon an incomplete understanding of the purin bodies and their forbears. In diabetes mellitus the judicious administration of carbo-hydrates has been followed by lessened incidence of coma and by marked improvement of nutrition. A broader knowledge of the nephritic diseases has led to an enlarged dietary which is based upon a clearer understanding of normal metabolism.

Exercise.—That use of a part increases its capacity for developing its function is known, and the application of this principle results in the approach to physiological integrity. Its results in improving nutrition are far-reaching, but its limitations, so carefully studied during the past decade, are equally important.

Light Therapy.—Here again, we find a far too brief chapter. The ascertained facts are few compared with what will be known. As they accumulate and logical deductions are made, our therapeutic resources are likely to be enormously augmented.

Pure Drug therapeutics.—Drug therapeutics, although of earlier development, has lagged somewhat behind phy-

sical and mechanical therapeutics as regards its establishment upon a firm rational basis. There is no doubt now that the new physical chemistry, the most brilliant chapter in chemical development at the end of the nineteenth century, will soon remedy this defect). Already this has been accomplished for familiar drugs and the end is not yet. At the beginning of the nineteenth century the use of all drugs was based upon empiricism. As the result of German nihilism, unfortunately there was for a time in scientific hands, a neglect of drugs that kept therapeutics in the background, while pathology and other departments of medical science were advancing with giant strides. Even at the present time many so-called text-books of medicine are scarcely more than treatises on pathology. With regard to treatment very little is said. So much is this division of the book overshadowed by the rest that often it occupies brief paragraphs where the other branches of the subject have pages devoted to them. This, of course, is not as it should be, since a text-book on medicine must be helpful not alone in the recognition of disease, but especially for its cure, as that is possible, and for its alleviation, if cure cannot be obtained.

Basis of Drug Therapy.—Drug therapy is now being put on a secure basis, by observations in the laboratory, not only from its suggestions, but as well from its confirmations of clinical observation. This does not change the views with regard to the employment of remedies, but often helps to make it clear how they may be used with better effect. Digitalis is now used on a very different theory from that on which it was originally introduced, but the indications for its employment are the same as when Withering first wrote with regard to it in 1784. The most hopeful suggestion with regard to present-day drug therapeutics lies in the development of physical chemistry. It is but a few years since Faraday introduced the word *ion* and the idea which it conveys. Only now

is this idea bearing fruit in a new science of chemistry. In the days when Lister recommended phenol as most important for securing asepsis, the material was employed in solution in various substances. However by observation it came to be known that in oily solution phenol did not inhibit-bacterial growth. It was not until the application of Faraday's theory to chemical compounds brought out the fact that electrolytes are free when in oily solution, that the real explanation for this failure of phenol, under these circumstances, could be understood. The reason for the use of alcohol as a direct antidote for phenol, is now clear. The same explanation has been found to be helpful with regard to solutions of mercury, and even with regard to many biological phenomena where it might be least expected to have its application. The action of toxin and antitoxin on one another are phenomena of ionization. These phenomena can now be measured with exactness by the modified Wheatstone bridge, as has been demonstrated, and Kohlrausch has determined the conductivity of fluids with reference to their contained electrical units.

Chemical Constitution.—The physiologically opposite results from the introduction of a methyl-radical are striking (strychnine, convulsant; methyl-strychnine, paralyzant). The effect of change of position of a radical may be striking as resorcin (metadihydroxybenzene) is very sweet, while pyrocatechin (orthodihydro-benzene) is bitter. The atomic weight seems to influence toxicity, as in the alcohols it increases from methyl-through ethyl,-propyl,-butyl,- to amyl-alcohol. In the synthesis of hypnotics the varying effects of radicals upon different portions of the brain being known and result of placing the various radicals in the ring, the construction of a safe and reliable hypnotic has become possible.

Empiricism.—It must not be forgotten that at various

times varying explanations for the action of a drug may be offered and accepted, and yet the truth as to its real therapeutic effect not be known until the real cause of the disease has been recognized. So long as a valid explanation is not established, remedies must be employed on the basis of clinical experience. Until Laveran discovered the cause of malaria, it was impossible for therapeutists to give the true reason for the action of quinine in the disease.

Much had been said about its supposed effect on fever, and of its effect on the white blood cells, it was when it had been found that it acted unfavorably upon the *plasmodium malariae* that the real explanation became evident. The empirical fact of the usefulness of quinine was undeniable. The explanations offered for its effect, however, were many and had to be changed with the progress of science until at last truth came, and its employment was placed on a scientific basis.

Simplicity of Therapy.—The tendency in drug therapeutics is a way from complex prescriptions and ill-assorted combinations. The “what” is first determined, then the “how much” and finally the “when.” Thus, having carefully chosen the remedial agent, the question of dosage is settled, and finally the dose interval.

This implies a thorough knowledge not only of effect, but of rate of absorption and elimination. In this way a definite effect, is produced.

Number of Drugs.—Old customs in medicine seem to counsel not only many drugs, but very frequent administration. One remembers distinctly in hospital treatment the usual practice of one medicine given before and another after meals, regularly three times a day, with a sleeping draught at night and a laxative portion in the morning. Altogether the patient looked to eight different times at which some drug was to be administered. Undoubtedly

this had a good suggestive effect, whenever it was not undone by the action of the medicine. Certainly the modern practice is more in accord with the teachings of pharmacology.

Formularies.— These and the “disease indices” of works on *Materia Medica*, should be abolished since they lead to routine prescribing and, ignoring the particular patient, are not the best expressions of therapeutic skill. This statement applies even more strongly to the literature of this kind emanating from manufacturing chemists.

Students and Drug Therapeutics.—The question is often asked why medical students do not know more about therapeutics, since, as a rule, most of them are anxious to learn what to do for disease and yet, they are graduated, without practical training in the use of remedial agents. In the schools there is too much teaching of the theory of treatment and too little demonstration of the practical working of drugs either on animals or on patients. It has been recently well said that the teaching of therapeutics a few years ago, even in good medical colleges, was apt to be rather farcical. The professor did a good deal of reading of facts and dry lecturing with regard to drug action, until the student finally procured a compend, memorized the matter and passed his examination. With regard to clinical application of drugs, so little was taught, that the student carried away next to nothing. The professor of clinical medicine spent nine-tenths of his time in the discussion of diagnosis and etiology and of pathology, and said only a few brief words with regard to treatment at the end. Some men who obtained hospital work were given a training at the hands of distinguished clinical observers, but found that their use of drugs was entirely empirical, and had very little reference to scientific drug action, as stated by the specialist in therapeutics. At the present time a change has come over that

sort of teaching. But the medical student of to-day is eminently to be pitied. He is in the midst of three fires. There is the laboratory man who wants most of his time; the professor of clinical medicine, who wants him at the bedside for many hours a day; finally, there is the specialist who considers that the only hope for practical medicine is in the devotion of more time of the specialties."

Teaching of Therapeutics.—Since this is so, there should be some method devised by which not only shall the student be able to acquire the requisite information during his period of tuition, but that he shall so thoroughly acquire it that he may become a better practitioner of the most important division of medicine, namely, Therapeutics. Without sacrificing the fundamentals upon which the structure of medicine must stand, a logical system must be insisted upon so that the opprobrium of the schools shall no longer exist. It would seem that this can best be accomplished by the following plan covering the four years of tutelage:

- (1) A practical acquaintance with various remedial physical measures and remedies, not less physiological, and methods of preparing the latter. This should be acquired during the early and mnemonic period of the student's career (recitation and demonstration).
- (2) Actual knowledge of the action of agencies and remedies acquired by personal experimentation and demonstration under the teacher's eye (laboratory demonstration).
- (3) Application of these agencies and remedies, the actuality of their effects for good or evil having been fixed in the student mind, in the treatment of disease and symptoms, under proper supervisions (lecture and clinical demonstration).
- (4) The accurate direction for the exhibition, in strict pharmacopoeial nomenclature, of remedies and the scientific use of physical agencies must be so thoroughly comprehended by the student that he can not only intelligen-

tly apply them, but give valid reason for his treatment (clinical practice and conference).

Pharmacopoeia.—While the profession in America had an excellent pharmacopoeia, one that is generally considered more valuable than that of any other nation, not excepting any, very few physicians have been sufficiently familiar with it. In fact, it is apparent that a very large proportion of practising physicians do not know the pharmacopoeia because they have been deterred by the supposition that it is of great size (confounding it with the various dispensatories), while it is really a comparatively small book, yet containing well arranged, not only a sufficiently complete armamentarium, but also some indispensable information, which a physician should have who is intent on prescribing rationally and without the supposed aid thrust upon him by over-zealous manufacturing chemists.

Pharmacopoeia Development.—The United States Pharmacopoeia was first formally planned in 1817, when it was decided that some legal standard was required for drugs and drug preparations, which should have national authority. Until 1840 it continued to give the text in both Latin and English, but since then it has been published only in English. Every ten years, as the result of invitations to medical schools and societies and pharmaceutical schools and societies, and the medical departments of the Army and Navy, a committee of revision is selected, consisting of twenty-five members, who see to the elimination of drugs that are no longer used and to the introduction of remedies of various kinds, that have been introduced to medicine during the preceding decade. The book thus made is the legal standard, and is adopted by the Treasury Department (Custom House), the Army and the Navy, as well as by most of the States, as the Court of final appeal for formal and legal information with regard to drugs. The next

revision which is shortly to be issued, will contain besides much additional information, the average adult dosage of the various drugs and remedies that are incorporated in the pharmacopoeia. From various sources suggestions have come that this revision be translated into Spanish. If this is not an opportune moment for a Pan-American Pharmaaopoeia, at least, this much is evident, a Pharmacopoeia produced by representatives of the three Americas, with text in both Spanish and English, would be a potent factor in harmonizing the therapeutic practice of the Western hemisphere.

Therapeutic Successes.—Those who are discouraged with regard to therapeutics should remember some of the facts and statistics of present-day treatment. Formerly seventy-five percent, of patients attacked by laryngeal diphtheria, died. Now between serum and intubation, or both, seventy-five per cent, recover. The former death rate from typhoid fever in hospital treatment was eighteen per cent. Now the mortality is not more than two per cent., under the use of intestinal antiseptics. As the result of the use of quinine, ninety-five per cent, of the patients suffering from amoebic dysentery recover, though formerly this was a very fatal and persistent disease. In acute infections pneumonia the mortality should not be more than five per cent. But few instances of the enormous progress which therapeutics has made, need be cited. Those whose practice is guided by the methods, and who make use of the agencies of modern Therapeutics, are conversant with the brilliancy of the crowning triumphs of modern medicine.

679, Madison Avenue,

New York City.

Dec. 17, 1904.

LA UNCINARIASIS.

Palida mors oequo pulsat
pede, pauperum tabernas, Re-
gunque tuires.

HORATIUS.

(DEFINICIÓN).

Este azote que diezma de una manera calamitosa los habitantes de la zona tropical y que tan estrechamente se relaciona con la anemia tan acentuada en los agricultores de Puerto-Rico y en particular con los trabajadores agrícolas de este País, es una aniquiladora é incidiosa enfermedad, caracterizada por una anemia progresiva, causada por la presencia de un vermes habitante del canal intestinal, generalmente localizado en el duodenum y el jejunum.

Este parásito pertenece á la familia de los nematodes y se le conoce con el nombre de **UNCINARIA DUODENALIS**.

En las Indias Occidentales emplean el término **ANKYLOSTOMUN DUODENALE** para designar la causa pato-

genica de la enfermedad, al paso que ésta tiene una nomenclatura en extremo múltiple y curiosa.

CAQUEXIA AGUESE ó MALCOEUR, mal de estómago de los negros.

En Colombia los naturales usan de una expresión un tanto generalizada en el país: esta es TUN-TUN y llaman TUNIENTOS á los enfermos afectados de ella.

En Puerto-Rico se emplea un provincialismo JIPATO, adjetivo mortificante para el infeliz paciente.

En Brazil la nombran OPILACO y CANCACO.

En Europa, la frase “Anemia del minero” ó “enfermedad del tunel,” deja facilmente entrever que esta última calificación es una alusión á la terrible epidemia que ocurrió entre los trabajadores del tunel de San Gothardo.

En Ceylan la “ANEMIA DE LOS COOLIS” es la misma afección que en Assan llaman “KALA-AZAR,”

En término ANKYLOSTOMUM DUODENALE ha ido desechándose un tanto: la nomenclatura moderna emplea hoy generalmente los nombres de UNCINARIASIS y UNCINARIA DUODENALE para la afección y la causa respectivamente.

El enorme contingente que anualmente desaparece por ella evaporado, trae consigo un problema grave y difícil ante la medicina, ante la higiene pública y ante la Sociedad en general.

Dadas las frecuentes y asoladoras epidemias que se repiten en todas partes del mundo, la extraordinaria mortandad hace pagar á la humanidad un rudo tributo.

Difundida por todo el orbe la UNCINARIASIS, re-presenta un verdadero desastre económico social; arras-trando la humanidad hacia la tumba; siendo más mortífera que el mismo cólera asiático; pues si bien éste arrasa con

un pueblo en breves instantes, no vuelve sino como los cometas, á larga fecha, en tanto que la enfermedad de que nos ocupamos puede compararse á la gota de agua tenaz, persistente, constante, que perfora la piedra y empuja á la eternidad á millones de almas de los. 1.500.000.000 que pueblan el globo.

La espantosa mortandad de que es causa la UNCINARIASIS pone tan asoladora dolencia en parangon con las tres calamidades que más afligen la especie humana: el hambre, la peste y la guerra.

La UNCINARIASIS reduce la capacidad del trabajo manual á un tanto por ciento de pérdida en la producción los ménos de un setenta.

Con frecuencia es la ruina de una familia y no pocas veces sentimos la marcada influencia que imprime á una comarca en su condición intelectual, alta y notablemente reducida. El mundo entero es sacrificado por ella.

CARACTERES DEL PARASITO.

Los norte-americanos denominan estos vermes "BLOOD SUCKING RHABDITIC NEMATODE."

La hembra tiene de 7 á 15 m. m. de longitud por 4 á 5 de ancho. El macho es más corto y más grueso. Ambos tienen la forma cilíndrica. Generalmente su color es blanco cuando se le ve vivos; gris cuando muertas y rojo oscuro si están llenos de sangre, inmediatamente despues de ser desprendidos de la mucosa intestinal.

Son más anchos en la parte posterior. El cuerpo termina de un cuello delgado que remata en punta, la cual está armada de una sobresaliente y fuerte capsula en la boca. Cuatro garras en forma de ganchos presentan en la línea ventral y dos dientes cónicos en los lados de la línea dorsal, que hacen la extremidad de dicho órgano tan notable.

La extremidad opuesta es puntiaguda, en forma cónica y se le denomina cola. La del macho difiere un tanto de la de la hembra: el primero tiene en ella una BURSA ó cóbulo semejante á la figura de un paraguas y deja ver en él proyecciones como costillas.

Dos largas y delicadas espículas se vé que proyectan de la cloaca que se abre al fondo de la bursa.

La cola de la hembra termina en una especie de espina delicada. En la superficie ventral el orificio de la vagina esta al comenzar del tercio posterior del cuerpo y la apertura anal es sub-terminal.

La posición relativa de los organos sensuales hacen que veamos los gusanos en el acto de la conjunción y en forma semejante á la letra Y griega.

Por medio de estos organos se adhiere fuertemente á la mucosa intestinal, y al desprenderse deja una herida en el pequaño intestino al libar la sangre, que es su alimentación predilecta y la cual obtiene en abundante cantidad á expensas de su víctima. Se supone que con frecuencia cambia de lugar. El pinchazo que infiere al intestino vierte sangre, y al abandonar la pequeña picadura, la extraída pasa al través de su diminuto canal digestivo sin alterar la constitución del glóbulo rojo que logra salir intacto. El plasma parece ser su alimento predilecto y la única porción de la sangre que aprovecha para su sostenimiento.

Estos parásitos son en extremo fecundos. Se calcula que 300 hembras dan 1.000.900 de huevecillos al día. Diseminados en los terrenos se convierten en larvas infecciosas.

Estos huevos, al ser expulsados con las materias fecaloides se desarrollan facilmente lo mismo en las aguas pantanosas que en los terrenos.

Cuando los huevos han abierto, dice Mandurnez de Valenciennes, las larvas no pueden desarrollarse sino á

una temperatura considerable que varia entre 18° y 35° que es precisamente la temperatura de las minas. Así se explica que ataque con tanta frecuencia á los mineros y especialmente á los individuos de los países cálidos.

El embrión, dentro del organismo humano, se desarrolla con lentitud; más fuera de él y en condiciones propicias es prodigioso y rápido su desenvolvimiento.

Los huevecillos se encuentran mezclados con las feces.

El procedimiento en el exámen microscópico es sumamente sencillo.

En el laboratorio bacteriológico del Hospital Militar de Ponce, que dirige el Doctor Bailey H. Ashford, laborioso é infatigable investigador á quien mucho deben las ciencias médicas en estos estudios, empleábamos el siguiente método:

Una pequeña cantidad de la materia sospechosa se coloca entre los dos vidrios (slides) y apretando uno contra otro, aparece como una película. Los vidrios se mantienen unidos por medio de unas bandas de goma elástica que los comprimen, apretando el uno sobre el otro y de esta suerte queda sometido al escrutinio del microscopio. En cada película se ve por lo general 3 ó 4 ú 8 huevecillós. El examen conviene efectuarlo despues de algunas horas de tener en reposo lo materia sospechosa porque de otra suerte desaparece el caracter distintivo del huevo que se empolla con el embrión. Las OVAS se ven transparentes y claras. Son de un color gris claro, con pequeños espacios entre los segmentos y de una concha fina difícil de ver.

Difieren de las otras variedades porque se tiñen de bilis. Los huevecillos miden de 55 á 65 m. m. de largo por unos 32 á 40 de ancho. La concha es lisa, manchada de un color grisáceo. Las celdas se distinguen con almidon, usando la solución Lugol. La proporción del macho á la hembra es de 1 á 3.

ETIOLOGIA :

La producción de huevecillos es enorme.

Con las defecaciones infinidad de ellos son expulsados y si bien el embrión se retarda en crecer en su alojamiento habitual el duodeno, fuera del cuerpo y en circunstancias favorables evoluciona con notable facilidad.

No obstante su pequeñez, es muy activo voráz, al extremo de destruir cualquiera materia orgánica que encuentre y adquiere proporciones notables en corto tiempo.

En el estado de larva ú oruga, cesa su crecimiento. De tal modo, puede permanecer por espacio de algunas semanas, moviéndose con mayor ó menor languidez en las aguas de charcas pantanosas, así como en las tierras fangosas etc., de donde brota la fuente que esparce la infección al hombre, que contamina por efecto del trabajo manual que efectúa al pie de estos parajes cundidos del mal.

Los trabajadores agrícolas de esta suerte adquieren notoria facilidad la UNCINARIASIS.

El contagio se efectúa ya por la contaminación de los útiles de labranza, ya por las manos, los alimentos, que así quedan expuestos á la acción directa de las larvas y de ahí al organismo.

Al penetrar el gusanillo en la morada humana muda otra vez y adquiere carácter sexual y forma permanente.

La longevidad del huesped es de unos tres años. Son heterogeneos y pueden vivir y desarrollarse sexualmente fuera del ser humano.

Cualquier ocupación ú oficio que exponga al hombre en contacto directo con las tierras infestadas, dá márgen á tan calamitosa dolencia.

La “anemia de los mineros” es debida en la inmensa mayoría de los casos á la UNCINARIA; no obstante: la

epidemia ocurrida entre los trabajadores del Túnel de San Gotthardo parece fué producida por el RHABDITIS STERCORALIS ó anguilla intestinal.

La anemia de los fogoneros de los pañoles de carbon es producida por estos nematodes.

Hoy es imposible saber de que manera se importó en Anzin, donde ha ocurrido infinidad de casos.

C. W, SLILES la considera como la más mortífera y ruinosa.

Hayman Thornhill, declara que es peor que el cólera.

E. E. Candle dice que las prisiones de la India están llenas de tan aterradora enfermedad.

Sousino la agrupa con la FILARIA y la bilharzia, y la considera entre los azotes de la humanidad, como uno de los más terribles.

Agnoli dice que en el Amazon es la causa más frecuente de las funciones.

GILES asegura que el parásito es responsable de la formidable mortalidad que hay en la India.

Dobson la conceptúa como una plaga desoladora.

Mc Canathy la compara con el "BERI-BERI."

Leichtemstem, el eminente alemán, cree que la raza blanca es más propicia á ser atacada que la negra.

Peroncito fué el primero en clasificarla entre el grupo de las enfermedades infecciosas.

Dubini se preocupó tanto de ella que no descansó hasta encontrar la causa, Fué el primero en descubrir el parásito.

BORAH la conceptúa devastadora y ruinosa para los cosecheros de té en Ceylan.

W. W. KING aportó á la literatura del asunto brillantes deducciones bacteriológicas.

O. BAKER dice que el gusano se retira de los sujetos débiles como las ratas se mudan de las casas vacías.

LUTZ fué el primero en insistir sobre el tratamiento eficaz del TIMOL.

Ashford, fué el primero también en llamar la atención de los eminentes profesores americanos, hoy engolfados en otras ramas, sobre infinidad de brillantes puntos, tanto en la literatura del asunto como en la clínica demostrada.

La Europa entera se preocupa con esta afección. En los Estados Unidos se hacen grandes esfuerzos para luchar contra ella.

En Africa la UNCINARIASIS diezma las regiones del Egipto.

En Assan, las indios que huyen hacia la montaña queriendo escapar á las furias del paludismo, son víctimas de esta azarosa enfermedad.

En todo Ceylan hay más de un 75% de habitantes que sufren de ella. Allí causa más muerte que el mismo cólera.

En Inglaterra en las minas de Cornirsh y Dolcoath han ocurrido varias epidemias de forma alarmante.

En Francia han sido estas frecuentes y fatales. Leanse sino, la ocurrida en Chemnity.

Bélgica también ha pagado su tributo.

Alemania ha sido cruelmente azotada.

Las epidemias de las minas y las fábricas de ladrillos han sido terribles.

En Austria-Hungría las epidemias más aterradoras han ocurrido entre los que hablan el Czech.

En Japon, como en Rusia, en España como en Italia ha hecho también sentir sus estragos.

Los italianos y los polacos son los que la han difundido por toda Europa.

Prevalece en las Indias Occidentales tanto como en las de Oriente. En Australia é Islas del Pacífico ha hecho también su aparición.

En el Brazil más del 40% de los habitantes están infestados.

En Cuba se la confundía al principio con la anemia perniciosa, y en la actualidad causa tantas defunciones como en Puerto-Rico, ó más.

En Estados Unidos, sobre todo, en Georgia, Alabama y Florida, no ha dejado de hacer sentir sus efectos. Lo mismo pudiera decirse de la América Central y la del Sur.

En Puerto-Rico sucumben más de diez mil almas anualmente, que cubren con un manto fúnebre toda esta porción de tierra americana.

Aquí la carencia de un sistema de drenaje y la falta de higiene, sobre todo en la zona rural, motivos son que explican la rápida y progresiva difusión de la infección.

Las deposiciones por efecto del abandono en que viven nuestros sencillos campesinos, cuyas casas carecen de letrina, difunden los gérmenes del mal sobre la superficie del terreno, y de esta suerte cunde la infección.

La humedad, el uso de las ropas sucias, el mantener las casas mugrientas de lodo, verdaderos estercoleros humanos, son causas esencialmente determinantes del sostenimiento de la infección.

Que la ocupación juega un importante papel en la producción del mal, no cabe duda: lo confirma la naturaleza de

la dolencia. Las clases pobres son con frecuencia más mortificadas que las acomodadas. En el Brazil, las tierras en que se cultivan el arroz, el café y los cereales, son las más adaptables á la evolución y crecimiento de la UNCI-NARIASIS.

La razón estriba en que precisamente hay en estos parajes aire, sombra y humedad, tres factores que en Puerto-Rico también son muy dignos de tenerse en cuenta.

Las feces no deben diseminarse en los terrenos : de aquí la importancia de hacer construir las letrinas.

Las lluvias tan frecuentes en este país, se encargan de diseminar las larvas, ya que el agua por sí no es un transmisor directo del germen al hombre, tanto como lo son en realidad los comestibles. Las manos de los trabajadores agrícolas no solo llevan la infección á sus propios organismos sino que contagian cuanto tocan y de esta suerte hacen la propagación más rápida.

Los vegetales escasamente lavados al prepararse para los gastos de la vida, así como la perniciosa costumbre de comer con las manos sucias, causas son de tanta desolación y desventura tanta.

Los huevos de los ankylostomas son espulsados en cantidades asombrosas al extremo de que en un insignificante pedacito de tierra se han encontrado más de 50 larvas, las cuales al caer, si encuentran aire, adecuada temperatura y abundante sombra, en tan excelente cultura media evolucionan "at pleasure."

Las larvas necesitan del aire para su desarrollo.

De aquí la preponderancia que el mal vá tomando en Puerto-Rico, en donde la uncinariasis ha tomado carta de naturaleza de modo fuertemente arraigado.

Y lo más desolador es el dorso de la cuestión, si tenemos en consideración que sólo una escasa parte que no lle-

ga ni con mucho á la tercera, las viviendas aunque frescas y alegres no tienen en este país letrinas, las pocas que existen son aún más perniciosas que si no las hubiere y el número de inodoros que en toda la Isla hay montados son tan pocos que pueden fácilmente contarse.

Con tan deficientes condiciones de salubridad, hay que sostener una lucha titánica, cuando por ende solo 400.000 almas beben agua filtrada el resto á completar los 953,243 que forma el total de nuestra última estadística vital beben agua fangosa. ¡Perspectiva en verdad desconsoladora ! Atrocidad del Cielo !

Estas causas intrínsecas (Corresponden también á las extrínsecas ó externas) en tanto que por la perniciosa costumbre de andar descalzos, las puertas de infección quedan de par en par abiertas.

Casos no faltan en los cuales las larvas han penetrado por la piel y han determinado úlceras en extremo rebeldes á todo tratamiento.

Las larvas pueden al penetrar la piel ser arrastradas por el torrente circulatorio, alcanzar la vena porta y de allí llegar al intestino, su alojamiento preferente.

Generalmente la larva se introduce por el tubo digestivo, pero se admite que puede también entrar por la piel en los fabricantes de ladrillos, tejas, etc., penetrando entonces por los folículos pilosos y por las desgarraduras de la piel; todavía pueden las larvas encerrarse en una vaina puntiaguda y penetrar de este modo con más facilidad en el organismo.

En el lodo y en las aguas sucias ó estancadas se mueven las larvas lánguidamente y pueden vivir allí por espacio de semanas y aún meses. De esta suerte se comprende como pueden tan fácilmente infectarse los utensilios y las manos de los agricultores etc.

Los Geofagos depositan en abundancia grandes masas de larvas.

La acción directa de los rayos del Sol destruye la vitalidad de los vermes, tanto como una temperatura de 140. F., al paso que se mantienen en vigor sobre la superficie de la tierra. Debajo de la capa superficial de terreno sucumben pronto.

Hay la errónea creencia profundamente arraigada en la conciencia pública, sobre todo en Puerto-Rico que la causa esencial determinante de la anemia, obedece á la mala alimentación que trae consigo la miseria.

Tal fundamento se basa, en que además de la estrechez en que viven los desheredados de la fortuna, víctimas del pauperismo más acentuado, tienen que dormir soportando todas las vicisitudes de la intemperie.

Y no faltan quienes aducen razones al parecer incuestionables de que las recias penalidades y fatigas á que por efecto del desvalimiento en que se encuentran sometidas las clases menesterosas, viven en una atmósfera pobre de aire puro y escasa la ración alimenticia al extremo de que el torrente circulario se vea privado del material rico en sustancia proteida y agregan además que la pérdida de color que se desprende por irradiación del organismo durante las noches húmedas y frías de nuestra zona, al dormir sin más cubierta que la túnica azul del Cielo, ni más reclinatorio que la tierra, sean precisamente causas engendradoras del mal.

Cierto es que estas transgresiones en la higiene imprimen deterioros graves en el hombre, sobre todo si pernoca en parajes húmedos por cuanto predispone el organismo al decaimiento, reduciendo el vigor y la fuerza de resistencia vital enormemente deprimidas, pero nunca como causa esencial como generalmente se cree.

Mas ¿por qué no pasa lo mismo en Europa? ¿Es que

en aquellos climas los cambios que animan el funcionamiento son más bien progresivos que descendentes?

Aquellos semblantes en verdad no pueden compararse con el tinte pálido, ceroso y bronceado del nuestro.

Parecemos una legión de enfermos al pie de tan rosados rostros.

Y es que el hombre, también, no nace, crece, se produce de la misma manera en todos los países.

Nuestro clima de por sí enervante, nos predispone por nuestras tendencias, nacidas también de nuestro medio ambiente, á amar todo lo que ha de restar vitalidad á nuestro cuerpo.

Y así nuestros vicios, costumbres y modalidades de vivir influyen en nuestra decadencia orgánica, en nuestro pauperismo fisiológico, pero nunca actúan estas causas como agentes determinantes de la anemia.

El fósforo que ganamos durante el día se pierde es verdad durante la noche, pues el medio ambiente, la impresión que caldea nuestro sistema, le impulsan al sensualismo, y nos hace gozar cuanto infunde pavor y de ahí nace la necesidad de sentir y sentir con fuerza.

De ahí el tabaco, el café, los licores, la diosa Venus etcétera, etcétera.

No obstante, ¿por qué en aquellas ciudades Europeas, donde si bien la abundancia de grandes capitales, tiene su asiento también la miseria es más grande y el pauperismo más; mucho más acentuado en intensidad, y no ocurre lo propio?

¿No hay allá mayor miseria?

¿No es en aquel clima más intenso el frío? No es más extremo el calor? No son más fuertes las impresiones de calor á frío y vice versa?

¿No es allí la lucha por la existencia más tenáz, más ruda, más batalladora? ¿No es mayor el trabajo intelectual dentro del menor descanso corporal, en el más inferior desenvolvimiento?

¿Y no decimos que el hombre es superior cuanto mayores sean sus diferenciaciones extremas?

Tengase en cuenta en aquel ambiente, el polvo durante el día, los ruidos durante la noche, y que sin sol, sin luz, sin aire, sin sosiego, la salud sufre profundos desequilibrios, y ¿acaso la anemia caracteriza el tipo natural de sus regiones?

En los Estados Unidos, las clases proletarias sufren más las privaciones que trae consigo la miseria, y no obstante los trabajos, fatigas y penalidades que sufren, es un pueblo de hombres atléticos, vigorosos, en extremo saludables.

La falta de alimentos no puede ser más deficiente y en el Africa Central, en donde la carne se come raramente y en donde el obligado y el concertante de la ración alimenticia es casi exclusivamente compuesta de yerbas y plantas tuberculosas y quierase mejor modelo de hombres robustos y sanos que aquellos?

Además, aquí mismo, podemos afirmar que no es una enfermedad totalmente esparcida por todos los ámbitos del país. Ahí están una infinidad de Pueblos en donde por rareza ocurre.

Y ya sean pueblos situados en parajes montañosos, ya en zonas de tierra baja y lo mismo puede decirse respecto á situación de ellos con relación al mar.

En algunas playas las defunciones son alarmantes, mientras que en otras apenas si es conocida la afección. Y no obstante nuestra situación económica es la misma de extremo á extremo en toda la Isla.

Esta limitación geográfica natural, indica además que si fuese sola la mala nutrición el factor principal determinante de la UNCINARIASIS, debería ésta extenderse por igual en todo Puerto-Rico en donde la situación económica en toda la Isla no puede ser más aflictiva y en un promedio de tierra que solo cuenta 30 leguaa de largo por 12 de ancho.

Si bien es verdad que más de 1000 campesinos mueren mensualmente, creemos que con un poco de aseo, profilaxia y un pequeño interés por parte del Gobierno Sanitario, puede aminorarse el tanto por ciento de víctimas y lograr que desaparezca totalmente tan terrible azote.

Si los hombres más robustos y sanos se colocasen bajo las mismas condiciones de infección en que viven estos labradores no tardarían en un lapsus de tiempo relativamente corto en convertirse aun los más atletas, en debiles y edematosos "JIPATOS."

PATOLOGIA.

Las víctimas de la UNCINARIASIS, no demuestran el deterioro del organismo como á primera vista pudiera creerse sino que se mantienen en un plano aparentemente sano, cuya robuztes poco á poco va tomando los caracteres de una edema que se extiende después por todo el cuerpo.

El derrame y la anemia no tarde en manifestarse. Las cavidades serosas son las que se infiltran primero.

Los trastornos mórbidos se inician tan luego la sangre ha perdido su normalidad.

El corazón sufre profundas modificaciones anatomo-patológicas, se dilata y pierde su dureza y consistencia fisiológica, sus tejidos musculares se degeneran y estos cambios tróficos se reflejan de igual modo sobre el hígado y los riñones.

De las degeneraciones la grasosa es la forma más corriente.

La sangre que baña estos tejidos trae consigo si viene pobre en hemoglobina trastornos naturalmente que coinciden con la pobreza de la hemoglobina propia del músculo.

El hígado amenudo es asiento de una degeneración grasosa, como el bazo y el riñón; éste último órgano se encuentra con más frecuencia interesado por efecto de la función eliminadora de la toxina tomando un caracter crónico la variedad intersticial de la lesión.

En los casos severos de infección una ANEMIA profunda deja cierta dilatación cardiaca y por ende la consecuente debilidad ó adelgazamiento de las paredes del corazón.

Examinado el hígado microscópicamente Daniels ha encontrado tanto en este órgano como en los riñones dentro de las celulas parenquimatosas granos de un color amarilloso, cuyo pigmento contiene haematoidin, indicando destrucción de sangre intravascular tal como se vé en los casos de anemia perniciosa y los estados morbosos en los que la hemolysis es el caracter distintivo peculiar de su patogenia.

Estos estados anémicos en parte se traducen por la destrucción de la sangre dentro de los vasos, por efecto de una sustancia toxica producida por los nematodes.

El Doctor Beaven Lake cree que la anemia es la consecuencia de la abstracción sanguinea que efectua el parasito y que el hierro hepático no es normal.

Examinados los cadáveres á poco después del fallecimiento se le encontraron los nematodes alojados en el intestino y perfectamente adheridos á la mucosa del duodenum, jejunum é ileum mientras que si este examen se efectua algunas horas después de la muerte, se verán los vermes totalmente desprendidos de la mucosa intestinal, la cual nos dejará ver pequeños orificios brotado ligerasn

exudaciones sanguinolentas, indicando el sitio de implantación del parásito mientras estuvo adherido.

Más de 500 diminutas heridas se han encontrado en algunos casos en la mucosa intestinal.

El pulmón es asiento de una congestión hipostática sobre todo cuando la muerte ocurre á causa de una anemia específica abandonada precedida de la inflamación intersticial del corazón, ascites, edema de la cara y extremidades inferiores, y la anemia cerebral. En estos casos no faltan las enfermedades cardiacas, cancer, hepatitis, acoria, tuberculosis, y tantos y tantos desórdenes y cambios atróficos cuantas lesiones orgánicas acarreen la negligencia de una intervención terapéutica eficaz á tiempo.

Vemos pues que las lesiones anatomo-patológicas se reducen á los fenómenos locales en el intestino, como equimosis, hemorragias mucosas y sub-mucosas, catarros crónicos intestinales, atrofas y cambios tróficos de caracter que señalan más bien una degeneración grasosa, y por último tras éstas apariencias desnutritivas, la alteración hematológica con el sequito de la dilatación cardiaca.

Durante los dos ó tres meses que duró nuestras pesquisas que empleamos en conjunción con el doctor Ashford en el Laboratorio Bacteriológico del Hospital Militar de Ponce, tomamos las siguientes notas.

He aquí los resultados importantes y de interes por más de un concepto á los cuales hemos llegado.

La relación normal de las cuatro variedades de glóbulos sanguíneos es como sigue:

Poliformos nucleados.....	60 á 72 %
Linfocitos grandes.....	6 á 8 %
Linfocitos pequeños.....	20 á 30 %
Eosinófilos	1 á 4 %
Hemoglobina	30 á 50 %
Glóbulos rojos.....	1000.000. á 3000.000.

En Europa las cifras normales dan el siguiente resultado:

Glóbulos rojos.....	por m. m. c.	5.073.880-
Hemoglobina		82. %
Polinucleados		73. %
Mononucleados.....		2 á 4 %
Linfocitos		20 á 12 %
Eosinofilos		3 á 14 %

Basta lanzar una mirada sobre la fórmula que precede para darse cuenta de la notable desproporción existente entre ambos caracteres fisiológicos.

Los exámenes hematológicos acusan las desproporciones siguientes en los efectos de UNCINARIASIS.

La hemoglobina nos revela el hematómetro reducida á un tipo verdaderamente desconsolador, en casos severos hemos encontrado la cifra acusando solo un 7 por %.

Y los glóbulos rojos que contamos en estado normal de un millón á tres millones por m. m. C., los vimos reducidos á la mitad en el HEMATINOMETRO.

Las alteraciones de relación en los demás glóbulos es como sigue: los eosinofilos en grave cantidad aumentados, al paso que los polimorfos nucleados notablemente se vieron reducidos en número.

Los primeros casos encontramos enormemente tan subida la cantidad que contamos hasta un 66 por %.

El tanto por ciento de hemoglobina y la relación de los eosinofilos son los puntos más perentorios y los que han de llamar más nuestra atención.

La disminución de la cantidad normal de la hemoglobina indudablemente es debida á la acción de la toxina, esta toxinemia no solo destruye la materia colorante sino que ejerce igual influencia sobre el poder oxigenante de la sangre.

En estos casos, la anemia es debida á la toxina hemolítica específica, elaborada por el parásito y á la abstracción de sangre que directamente ejercen los vermes.

Poderosas razones tenemos para acudir en favor de que la anemia producida por la UNCINARIA DUODENALIS se debe más que á la directa abstracción de la sangre ejercida por el parásito á la acción toxica hemolítica específica que elaboran los vermes.

Esta toxina se ha encontrado en la orina, de personas afectas de UNCINARIASIS.

Los cambios rápidos en el mejoramiento de los fenómenos nerviosos después de la expulsión de nematodes, la relativa inmunidad que algunas gentes de la raza de color gozan en parangón con la suceptibilidad de otros individuos y por último la eosinofilia causada por la triquinosis, filariasis y otras afecciones parasitarias, cuyos vermes son precisamente nematodos también son fenómenos que se observan independientemente de la anemia causada por una hemorragia profusa ó por otras formas de sustracción sanguínea, nefritis etc. etc.

La UNCINARIASIS, siempre trae consigo tarde ó temprano la eosinofilia.

En la forma crónica, ó en aquellos casos en que la anemia ha sido profunda la eosinofilia toma con más facilidad el tipo alto que el bajo. La causa se explica por la mala nutrición de la sustancia medular del hueso.

En estos casos crónicos y en aquellos estados que siguen en postrimería de la enfermedad tras un tratamiento eficiente si la eosinofilia se presenta en forma abundante, es un signo de pronóstico excelente. Se deberá necesariamente á la mayor actividad regeneratriz de la sustancia medular del hueso.

Si la eosinofilia decreciese de acuerdo con deficiente mejoría en los signos físicos, el resultado inmediato acaso

sea la muerte. Distíngase no obstante esta forma de la que aporta consigo el decenso de una eosinofilia que indica la recuperación del equilibrio sanguíneo en el receso á la salud.

Un paulatino alze de la eosinofilia induce á demostrar una convalecencia tardia, fenómeno aparente con más visible insistencia en las personas ancianas cuyos poderes recuperativos son débiles.

Por último, la evolución hacia el estado normal no falta cuando la enfermedad desaparece.

Ashford afirma que en comun con otras anemias secundarias hay policromatilia, poikilocytosis, de un bajo "*color index*." Que hay nomoblastos y megaloblastos pero al revés de lo que ocurre en la anemia perniciosa predominan los primeros. No obstante la oposición á este parecer de tales autoridades como Monson Boycott y Haldane, el joven médico del Ejército Americano aboga que si bien on hay leucositosis en esta dolencia puede presentarse solo coincidiendo y dependiente de otras condiciones, pero no como un síntoma.

SINTOMATOLOGIA.

Dolor de cabeza, más ó menos severo que va por lo general acompañado de una sensación de plenitud y dolores intensos en el epigastrio.

El apetito casi siempre está abolido y cuando no pervertido á tal punto que el enfermo apetece á comer para llenarse: lo que necesita es sentirse repleto el estómago.

El conjunto morbosó, trae á veces consigo, el repugnante vicio de comer tierra, ceniza y carbon, depravación más frecuente en los enfermos de tierna infancia.

Estos Geofagos como es natural sufren todos los errores de la dilatación gastrica, meteorismo, etc.

En un caso que tuvimos que hacer la autopsia á un cam-

pesino de Santa Isabel encontramos tal grado de dilatación gástrica que para depositar la materia excrementicia fueron menester grandes valdes.

Tales fueron los sufrimientos de aquel infeliz que al fin tomó la desesperada resolución de suicidarse.

Entre los síntomas del aparato digestivo no faltan aquellos propios de las dispepsias, así como las úlceras gástricas, tan frecuentes sobre todo en el sexo contrario.

La piel adquiere un tinte semejante al de los que sufren el mal de "BRIGHT", la cara toma una expresión de apatía y la ascites y el edema de las piernas completan el cuadro sui géneris y fatal que ata estos desgraciados á la muerte.

La aparición de la anemia va con frecuencia precedida de una erupción especial designada con el nombre de USA. GRE y de un catarro más ó menos reflejado en el tubo digestivo. Generalmente va precedida de la diarrea.

Los fenómenos de la intoxicación, imprimen á la fisonomía de estos atacados una soñolencia y marasmo, esa lasitud general tan en contraste con el caracter alegre de nuestros sencillos pero inteligentes y perspicaces campesinos.

La erupción sobre todo en las piernas adquiere un aspecto pustular, demostrando esto la habilidad que el ganillo tiene al entrar al organismo por las piernas.

Las úlceras en las extremidades casi nunca faltan y tan rebeldes que aun impera la creencia en los médicos que éstas son de carácter sífilítico.

El aparato circulatorio presenta profundos trastornos. Hay fatiga, palpitación del corazón, dispepsia, mareos, TINNITUS AURIUM, vértigo, ruidos sistólicos por encima de las válvulas mitrales y pulmonares, con la dilatación cardíaca.

Estos soplos anémicos, van acompañados del ruido venoso, la palpitación de las jugulares y el “BRUIT DU DIABLE.”

Las palpitaciones del corazón STATUS PROECORDIS y opresión en el pecho deprimen fuertemente sus espíritus.

En cuanto al aparato respiratorio concierne, generalmente no está afectado excepto trasformas secundarias que traen consigo las lesiones orgánicas del corazón, tales como emfisema, congestión hipostática, broncorreas etc.

SISTEMA NERVIOSO.

No obstante el caracter festivo y alegre de nuestros “jibaros” se vuelven apáticos y taciturnos, efecto de la intoxicación cuyo letargo obedece á la pérdida del poder oxigenante de la sangre.

Los trastornos nerviosos con frecuencia toman un curso más serio y las neurosis de estas pobres víctimas toman la forma de melancolía ó la neurastenia hipocondriaca.

He aquí también la falta de ambición é iniciativa que tan indolente condición acarrea.

El dolor de cabeza, los zumbidos en los oídos, los mareos, los vértigos y las neuralgias completan el horroroso cuadro.

En los casos más leves, la parestesia, el hormigueo en los pies y las manos les molesta engorrosamente.

El dolor de rodillas y los desórdenes de la visión son de caracter nervioso.

En el sexo femenino, la función propia de las damas es irregular y las perturbaciones sugestivas van acompañadas de estenuación, vértigos, estreñimiento habitual y la dismenorrea consecutiva va acompañada por lo general de hemorragias desviadas de la nariz. Las exoneraciones ventrales irregulares, la amenorrea y la leucorrea.

La muerte corta sus vidas á una edad temprana. Generalmente sucumben de las afecciones que con tanta frecuencia se asocian, esto es, al mal de "BRIGHT", la cirrosis hepática, la tuberculosis, y las degeneraciones grasosas del corazón, hígado, etc. etc., y la congestión hipostática de los pulmones.

Las úlceras del estómago, la acolia y las neuroses, arrastran á la tumba prematuramente, dentro de los crueles sufrimientos á tan infelices como desgraciadas víctimas.

TRATAMIENTO.

Consiste primero en la expulsión de los vermes y segundo en levantar la depresión del organismo regenerando la sangre y atendiendo las complicaciones.

De todos los agentes terapeuticos el timol aunque es el más peligroso, es el que ha dado mejores resultados. El peligro precisamente estriba en la absorción del medicamento, pero no es el fin terapéutico del timol sino al contrario evitar la absorción. Al efecto con objeto de evitar este incidente, es preciso evacuar el estómago, prescribiendo una buena dosis de sulfato de magnesia la noche antes.

Como el timol es soluble en las grasas, conviene aconsejar al paciente no tome leche, caldo, ó sustancia alguna grasosa.

El tratamiento de Lutz modificado por Asford consiste en administrar después del purgante, y mientras aún en cama y en desayuno dos gramos de timol en seis obleas á las siete de la mañana.

La dosis se repite á las 8 y á las 11, es decir tres horas después, se administra otro purgante como el primero.

Mientras permanece el timol en el tubo digestivo, siempre en decubito el enfermo, debe tenerse en cuenta la solubilidad del medicamento en el medio grasoso ó en las bebidas alcoholicas.

El objeto del segundo purgante estriba en evacuar el canal intestinal del timol, cuya acción no solo es eficaz en la expulsión de los vermes sino que actúa como antidoto fisiológico. En obleas se evitan los peligros que acarrea la administración del timol en solución, suspensión ó en polvo.

En los niños y ancianos ó personas débiles reduzcase la dosis á la mitad.

A la una de la tarde aliméntese al enfermo.

Este tratamiento debe repetirse cada 8 ó 10 días, hasta que la mejoría se inicie con el aumento de la hemoglobina.

Generalmento repitiendo el tratamiento tres ó cuatro veces los resultados son altamente satisfactorios.

En cuanto al azote que hay que imprimir al organismo para restaurarlo al vigor normal, los ferruginosos reconstituyentes más eficaces son las preparaciones de hierro cuyo gran servicio consiste en rehabilitar la pérdida de la hemoglobina.

El peptonato de hierro, presta en estos casos grandes servicios.

Como estimulante de la circulación, digital estricnina, estrofantus, cloruro de adrenalina. Esta última reduce el edema comprime los linfáticos y tonifica el corazón.

La estricnina es un medicamento irresponsable sobre todo cuando se trata de fortalecer los neurasténicos.

La digital se sustituye generalmente en Puerto-Rico por la esparteína.

La elaterina por la abundante diuresis que produce descargando el organismo de los líquidos extravasados tiene una indicación soberana en el edema de la anasarca y ascites.

El arsénico y las preparaciones de su simil, el orgánico ni éste ni sus múltiples derivados han dado resultado práctico alguno.

La dieta debe ser rica sobre todo en albumina.

PROFILAXIS.

El parásito en su medio natural ya hemos visto como se mantiene en la humedad, en el calor y en la sombra.

Lo importante es pues prevenir la esparción del mal.

La profilaxis ha de consistir en la aeración que hará bajar la temperatura en las minas y destruirá su parásito. La cal es excelente destructor.

Ya dijimos también que el parásito necesita aire para llegar á su estado de larva, de ahí que en la profilaxia tengamos que insistir en la construcción de letrinas y de este modo habremos evitado la infección de las tierras. Así el embrión queda privado de aire.

Evitar los trabajos en la humedad.

El aseo personal tiene aquí una indicación primordial, pues que con las manos sucias la infección sigue su rumbo y el infectado habrá de contaminar todo lo que toque.

Filtrese el agua, y lávense los frutos ántes de hacer uso de ellos.

Las ropas sucias, las casas mugrientas y llenas de cieno son condiciones favorables al desenvolvimiento del parásito.

Practicamente nada iguala al efecto del calor y sequedad para destruir esos parásitos.

El fuego ha dado buenos resultados.

STILES nos habla de un sistema de regar petroleo, tal como lo emplea la GYPY MOTH COMMISSION en Massachusets. Y nos indica el "quemador clicon" capaz de limpiar cualquier area infestada.

Constitúyanse letrinas y téngase presente la utilidad de la higiene.

No andar descalzos, é insístase en aconsejar á los campesinos no infectar las tierras con las deposiciones.

Téngase presente que no hay mejor desinfectante ni más económico que el Sol. La acción de los rayos solares sobre todo en la estación calurosa destruye la larva infecciosa.

Destrúyase cuanto sea posible la sombra en las tierras de labranza y recomiéndese quemar la paja y escombros. El fuego sobre la superficie del terreno priva la vida á las orugas.

140. F. son fatales á las larvas y éstas no pueden desarrollarse sino á una temperatura que varia entre 18º y 30º centígrados. Las minas tienen por lo general una temperatura próxima á 25. Precisamente el término medio del calor que las orugas necesitan para su evolución.

Si la UNCINARIASIS es causada por la presencia de los ANKYLOSTOMOS, cabe entonces el epigrafe de Horacio en nuestro trabajo: "La pálida muerte con el mismo pié conculca la cabaña del pordiosero que la mansión de los magnates."

La simpática acogida que la profesión médica ha dispensado á este trabajo, las inmerecidas demostraciones de adhesión que me han tributado, son preciosos auxilios que me animan á creer que tan imperfecta tarea, mal reseñada y pobre en todos conceptos, con todas las imperfecciones que imprime lo humano, será acogida con fraternal benevolencia en el Cuarto Congreso médico Pan-Americano de la República de Panamá, por aquellos compañeros, verdaderos campeones de la ciencia.

Si con mis débiles y escasas fuerzas coadyuvo á los esfuerzos intentados por ellos de excitar tan noblemente los intereses de la ciencia entre los Comprofesores de la

América latina en pró de la doliente humanidad, guardo la satisfacción de haber aportado con mi gran deseo, un grano de arena, á la obra, que indefectiblemente habrá de ser coronada por el éxito más brillante dada la nótoria validez y merecimiento del grupo de hombres de ciencia que la forman.

Si con mi trabajo, demuestro que no he rehusado con mi pobre contingente la cordial invitación de mis hermanos profesionales de la vecina y pujante República de Panamá, mis desvelos y mis esperanzas habrán sobrepujado mas, mucho más allá del logro de mis humildes deseos.

SHORT AND EASY METHODS

OF ARRIVING AT GOOD RESULTS IN COMMON DISEASES OF THE
EAR AND UPPER AIR TRACT, ILLUSTRATED BY RECENT
CASES.—BY W. SOHIER BRYANT, M. D., NEW YORK.

AUDITORY DELUSIONS. Miss A, K. Age. 27
Jan. 13, 1904. She complains of voices and sounds. The
voices talk about the thoughts that are in her mind. They
say bad things about her. She has a slight "chronic mid-
dle ear catarrh." I treat her with catheter, Seigel, and
nitrate of silver. Jan. 21.—Patient looks well. She does
not hear the voices as clearly. The tinnitus is mostly in
the right ear. The voices are heard in which ever ear
that is down on the pillow at night. March 19.—Hearing
slightly improved. The voices have ceased. No recurrence
three weeks later.

A very important case, showing the connection be-
tween tinnitus and insane delusions. The tinnitus in a
psycopathic patient taking the form of voices. Insanity
cured in 9 weeks.

Caries of tympanum; radical operation. Miss Mc, C.,

age 24. A year ago she lost a sister, after a radical operation, who had the same aural complications as herself. 14th September, 1904, when I first examined the patient, the tympanum had been curetted for otorrhea, some time previous but otorrhea continues and there is a large carious surface on upper and inner wall of tympanum and antrum. Tenderness on pressure over antrum. Temperature 99° Slight, very fetid discharge and perforation. Radical operation. Owing to the anatomical irregularities, the sigmoid sinus impinging against the posterior wall of the auditory canal, with only 1 m. m. of bone intervening, the posterior cranial fossa has to be opened, exposing the greater part of the sigmoid sinus. The carious condition of the tegmen necessitates opening the middle cranial fossa and exposing a considerable area of dura. All diseased tissues are removed. The meatus is split and stitched back into the wound, which is closed and packed from the meatus, leaving only a pencil drain from the exposed dura. Temperature did not rise above 100.5° Drain removed 18th September. Patient went home on the 28th September, with wound healed by first intention. Epidermitization progressed favorably. On October 26th, the tympanum was all covered with skin except at mouth of Eustachian tube. November 11th, the ear was dry and sound. November 25th, watch 9 inches. Patient has gained twelve pounds since the operation. Last seen December 17th, in perfect condition.

Shows satisfactory healing of tympanic cavity in eight weeks without skin grafting more than the plastic with the meatal flap mastoid wound entirely healed in 13 days.

Epidural abscess, operation, rapid recovery. Mr. G. T., age 21. (Patient of Dr. Mithelis, shown at the 1904 meeting of the American Otological Society). Three months ago "grippe" and ear ache. Two months ago severe

headaches commenced. When I saw him first, had seropurulent non-fetid discharge and not very marked tenderness behind ear. No superficial redness nor swelling. Tympanum filled with sensitive tissue. Marked tenderness over base of mastoid, extending posteriorly. Continuous severe headache. Constant seropurulent discharge. Temperature 100°, pulse 86. I performed my usual mastoid operation, using the front bent gouge, on June 19th. The mastoid cells and the whole process are filled with granulations and are removed. Posteriorly there is an area of bare dura about as big as a silver dollar, covered. With pus and granulations. All the diseased bone is removed. Wound irrigated with saline solution and closed. Dry treatment for the tympanum. Temperature did not rise about 100° July 4th, tympanum perfectly healed, acoumeter 13 inches. July 10th, wound healed solid. Hearing very good. Patient still continues well.

Shows the advantage of closing a comparatively clean cranial wound for union by first intention, and dry treatment of the tympanum. Tympanum completely healed in fourteen days. Wound healed solid in twenty days.

Severe aural symptoms cured with expectant treatment. Mrs. X., age 32. A daughter of one of the few rich men of New York. Left ear discharged many years. Head symptoms commenced, May, 1903, became violent in the summer and a mastoid operation was done with transient relief. 15th March, 1904, on account of vertigo with epileptiform exacerbations, extreme tenderness in scar and over bone of mastoid and occiput, and swelling and tenderness down the neck. Headache, temperature 99° A radical operation was done by Dr. Crockett, of Boston. I assisted and had subsequent charge of the convalescence. Patient much relieved by operation, wound healed by first intention. Maximum temperature 99°. A facial paralysis appeared the day after the operation. 22d. March, mea-

tus and bone behind ear very tender, shooting pains. 2d. April, very annoying vertigo, convergent strabismus, more or less constant pain and tenderness behind, below, in ear and down neck, and in right occipital region, and paralysis worse. Cleaning the canal and tympanum seemed to relieve the condition. Exacerbation on the 12th, 23d and May 5th. A third operation was not advised on account of the prominent position of the patient. Pharyngitis was associated with these exacerbations. 20th May, feels difficulty in moving left leg and arm. 16th June, no dizziness. 21st June, a relapse, walking difficult, on account of vertigo, tenderness. 24th June, ear discharge increased with relief of symptoms 25th July, ear dry, hearing good, symptoms very mild. 12th November, tenderness gone. 18th, bad attacks, fluid involved, but ear remains dry and healed, no redness of canal. 14th December, another similar attack. It appears that the submerged tonsil is chiefly to blame for these attacks. The facial paralysis very much improved with strychnin, massage and electricity. Cleaning the tympanum and nitrate of silver to the pharynx rapidly relieved the attacks.

An alarming group of symptoms due partly to the ear and partly to the throat, but apparently without any immediate danger.

Epithelioma of concha. Mr. S., age 60. October 31st, 1903, has an ulceration of the concha as large as a five-cent piece; behind posterior edge of right meatus. The said ear has discharged for six years. No glandular enlargement noted. I removed a specimen for histological examination. It was pronounced epithelioma by Dr. Dixon. 24th March, 1904, ulceration has slightly extended. After three weeks, with four X-ray exposures per week, by Dr. Morton, the ulceration has entirely cicatrized and disappeared. No recurrence.

This justifies a good prognosis for epithelioma of the auricle before involvement of the glands.

Facial paralysis. Mr. X., age 28. 25th October; 1904, left facial paralysis four days standing. Cause not known. The eye can be three-quarters closed, paralysis most marked about mouth. Ear normal. Tenderness below and in front of the ear extends unto mastoid process. Valsalva inflations easy. Hearing slightly defective by air conduction. Left side of pharynx red and somewhat swollen has been painful for two weeks. Pain in the throat in the posterior and inferior mandibular region. Could not eat for pain in ear. Could not shut mouth for a few days. Treatment strychnin and heat; silver applications to the pharynx. Patient improved rapidly. In 10 days could whistle slightly.

Shows an unusually rapid recovery in spite of the neglect of electricity.

ABSENCE OF TYMPANIC CONTENTS FROM ATTIC AND ANTRUM. HEARING IMPROVED BY DRESSINGS OBSTINATE FETID OTORRHEA. Miss. N., age, Referred to me by Dr. Joseph A. Kenefick, October, 7th 1904. She has had a running ear for more than five years, and much treatment, including ossiclectomy four years ago. Tympanum is devoid of all structures except stapes. There is scanty, very fetid discharge. The epitympanic space very extensive and filled with decomposing material. I cleanse the ear with H₂O₂, alcohol, and boric acid, and nitrate of silver solution. The vault and tegmen are extremely sensitive. October, 7th, nearly dry but fetid. October, 29th, clean, damp, but no smell. November, 12th, less tenderness. November, 28th, very little tenderness. December, 5th, dry and not sensitive. December, 14th, ear in fine condition. Hearing by watch 3.5 inches; after insertion of cotton tack it is 8 inches, and with paper dressing 9 inches.

Fetid discharge from vault of attic and mastoid antrum cured in 8 weeks.

FETID OTORRHEA FROM THE ANTRUM THROUGH
A SMALL PERFORATION OF VERY LONG DURATION.

Mr. T. C. J., merchant. December, 1st, 1903. Scanty, thin, fetid, purulent discharge from left ear, which has lasted for many years in spite of prolonged treatment by others. There is a perforation occupying the upper posterior quadrant, leading up into the antrum. The anterior part of tympanum is shut off by a cicatrix. I syringed the ear with Blake's canula and solutions of boric acid and nitrate of silver. After five treatments on alternate days the ear has ceased discharging and is healed.

December, 1904, hearing.

Patient has gained much strenght.

Constant fetid discharge from mastoid antrum cured in 8 days.

CARIES OF THE MALLEUS AND PERFORATION
OF SCHRAPNEL'S MEMBRANE. Capt. D., U. S. A.,
age.

Referred by Dr. Clarence J. Blake, of Boston, who made the diagnosis of perforation of Schrapnel's membrane with caries of the neck of the malleus. Purulent discharge came on in right ear during service in Cuba, 1898. Ear has discharged more or less ever since, in spite of varied treatment. It was much aggravated by recent service in the Philippines. Capt. D's application to the Surgeon General for allowance for special medical treatment being granted, I commenced treatment, February, 27, 1904. I find a perforation in Schrapnel's membrane and a slight amount of muco-purulent discharge. I syringe with boric acid solution, nitrate of silver, and alcohol. On March, 3rd, hears acoumeter 5 feet. On March 9th, discharge has ceased. Acoumeter $7\frac{1}{2}$ feet. Discharge soon reappeared, but was brought under control once more. March, 27, acoumeter 15 feet. Again the discharge reappears, and again was stopped. May, 3rd, the ear became permanently dry, and treatment discontinued.

May 17, hearing was 35 feet with acoumeter. Patient last seen November 28th. Ear has not bothered him any more.

Purulent discharge through Schrapnel's membrane lasting for over 6 years permanently stopped after 9½ weeks of treatment.

CHRONIC PURULENT OTITIS MEDIA WITH PINHOLE PERFORATION OF MEMBRANE. Mr. K. First seen May 20th, 1904. He has had purulent discharge from right ear for 4 years on account of which he is not now serving in Austrian army. He has had much treatment in Europe. I find fetid muco-purulent discharge oozing through a small pin-hole perforation behind the tip of the malleus. Membrane opaque, slightly red and very thickened. Thick muco-purulent discharge in vault of pharynx. Acoumeter 3 feet. I enlarge the perforation in membrane by a horizontal incision, and treat by syringe of boric acid, nitrate of silver, and alcohol for the ear, alcohol spray for the nose. July, 23rd, hearing, acoumeter 15 feet. August, 22nd, hearing, acoumeter 30 feet. Discharge stopped. Perforation shows no tendency to close up. September, 14th. Patient still in good condition.

A very obstinate purulent inflammation of the tympanum is healed in 13½ weeks.

Acute salpingitis and epitympanitis. Miss J. A., age 26, referred by Dr. Van Loan, 13th December, 1904. Has had cold in the head a month. Deafness two weeks. Lost weight pain in left ear and ringing sounds, discomfort in right. Watch left ear 4 inches; after treatment 17 inches. Right ear 18 inches, after treatment 48 inches. Left Schrapnel membrane red and bulging. Right ear partly filled with fluid. Catheter and saline sprays. 15th December, no pain nor noise. Right ear watch 96 inches, left ear watch 24 inches.

Rapid recovery of an acute condition in 48 hours. Hearing watch right 4 inches increased to 24 inches, and in left ear from 18 inches to 96 inches.

MECHANICAL ASSISTANCE FOR DEFECTIVE HEARING IN LOSS DUE TO SUPPURATIVE PROCESS CURED BY NASAL TREATMENT. Mr. F. B., age 25 June 15th 1904. Has had purulent ears for many years. Left ear discharging now, right cicatrized. I find hypertrophied lower turbinates and thick muco-purulent discharge. Acoumeter, right ear 2 inches, left ear zero. After inflation, left 2 inches, right 4 inches. I improve the nasal condition with operative and palliative treatment and the ears dry up. July, 3rd, both ears cicatrized. August 14th, with cotton dressing, hearing for right ear, acoumeter 7, left ear 14 inches. August, 31st, without cotton, 4 inches in right ear and 2 inches in left ear. With cotton replaced, hearing 18 inches in the left ear. September 6th, right ear, acoumeter 48 inches with cotton; left ear, 2 inches without and 9 with. October, 24th. Right ear, without cotton, 23 inches; left ear 10 inches with paper dressing in ear, 12 inches with cotton dressing. Patient whistles hears well enough for ordinary business purposes.

Otorrhea stopped in 17 days, Hearing brought us from accoumeter right 5 inches by use of dressings to over 48 inches in 3 weeks. Then without dressing to 23 inches in 10 weeks. From accoumeter left 0 inches, by use of dressing to 12 inches in 10 weeks.

GRAVE TINNITUS. Mr. J. M., stationer. aged 40 referred to me by Dr. Alfred Michaelis, February, 14th, 1904. Patient neurotic and haggard in appearance. Says he has an unbearable tinnitus in his left ear, preventing sleep and attention to business. Conversation and appearance suggest lack of mental balance. The ear began to run 36 or 37 years ago, the tinnitus began 12 years ago.

In September, 1903, underwent the radical mastoid operation for tinnitus without any effect on the tinnitus. The ear shows a large epidermatized tympanic cavity; no discharge. I tell the patient that it is possible to remove the auditory nerve and thereby stop the tinnitus, but milder measures had better be tried first. Give hygienic suggestions. February 27th, 1904, patient attempted to end his troubles by taking poison. 24th June, general condition improved, sleeps better, has been practically free from tinnitus a few days. December, 1904. Hygiene has improved his physical condition and restored his mental balance. He says he is getting used to the tinnitus.

After ten months the patient's mental attitude is much improved.

COMMENCING STAPES FIXATION. Mr. F. L., aged, referred to me by Dr. C. A. Crockett, of Boston, October 21, 1904, with diagnosis of commencing stapes fixation of right ear. The right drum membrane is dark colored and of normal transparency, nasal mucous membrane dark red. Tinnitus, like a sea-shell, crackling and musical notes. I use catheter, iodine vapor instillations, and nitrate of silver to the pharynx. Valsalva does not go. Ear feels and looks much better after treatment. December, 12th. Acoumeter 96 inches. The shell-sound tinnitus remains but is much lower and intermittent. Valsalva possible but slow. Strychnin sulphate 7.60 grains per day.

In 7½ weeks the stapes fixation has been materially relieved.

ADHESIVE MIDDLE EAR CATARRH. Mrs. P., referred to me by Dr. Potter, of New York. Age 71. Gouty tendency. 2d December, 1904, Itching of canals, ears feel thick. Nasal mucosa dark red. Acoumeter, left 27 inches, right 10 feet. Adrenal powder, silver nitrate to tubes and lanoline to canal. 14th December, subjective

symptoms stopped. Left ear acoumeter 42 inches, right ear, 15 feet.

Rapid improvement of hearing in adhesive prosesses in the aged, from right acoumeter 120 inches, left 21 inches, to right acoumeter 180 inches, left 42 inches, in eleven days.

A VERY OBSTINATE CASE OF THE ATROPHIC FORM OF CHRONIC CATARRHAL OTITIS MEDIA WITH DEAFNESS AND TINNITUS. Seen at the New York Eye and Ear Infirmary, February, 4th, 1904. Mrs. G. G., aged complains of tinnitus, simultaneous or alternating in the ears. High and low bells ringing. She says she has had the sounds in her right ear for two years and in left ear six. Right drum membrane has a large calcified area in anterior half. Hearing by air conduction very bad in left ear, good in right. Air passes by catheter and Valsalva, best into left tympanum. Fork lateralized in left ear. Nasal mucous membrane dark red and thickened. I treat her with the catheter vapor of iodine and applications of nitrate of silver to the naso-pharynx. Negative results continue for a long time. August, 9th, 1904. Has been better of late, and now hears well. August, 18th, 1904. Tinnitus stopped in right ear, and nasal mucous membrane is slight pink and clean. Finally tinnitus stopped, and hearing very good.

A short relapse in November, easily controled, mucous membrane good color, all right again Dec. 9th.

In 28 weeks the atrophic condition has been overcome. Result entirely satisfactory to the patient.

DEAFNESS DUE TO ADHESIVE PROCESSES AND RELAXATIONS IN THE SOUND CONDUCTING MECHANISM. Mrs. S., a society lady, aged 43, refered to me February 8th, 1901 by Dr. Clarence J. Blake, of Boston, for continuance of treatment he had commenced.

Right ear has a dry perforation which is being treated by paper dressing to induce proper adhesion. Left ear; Drum membrane relaxed, being treated with collodion dressing. The acoumeter heard at a distance of 4 inches by the left and 12 inches by the right ear. I continue the treatment of paper and collodion dressings. On March 22nd, the perforation is healed and the hearing in the right ear is, acoumeter 96 inches and in the left 72 inches, in spite of the patient's being quite exhausted from the season in New York.

In 6 weeks the hearing has improved from acoumeter 12 inches right and 4 inches left, to 96 inches right and 72 inches left.

SUBACUTE CLOSURE OF EUSTACHIAN TUBE.

Mr. H. D. H., architect, age 28. Referred to me by Dr. Joseph Collins, December 1st, 1904. Has had a cold in the head since November 12th. Has had various kinds of treatments four others. He hears, acoumeter 14 inches in right and 48 inches in left; after Politzerization, right 54 inches, left 96 inches. I insufflate of powdered suprarenal gland. Apply a solution of nitrate of silver in the red and swollen nasal fossae, and gave a menthol-eucalyptol spray for home use. December 3rd, acoumeter left 12 feet, right 8 feet. After Politzerization acoumeter heard over 20 feet by each ear. December 8, acoumeter in right over 15 feet and watch 3 feet, after Politzerization, watch 6 feet. Dec. 18th. Watch right 7 feet, left 5 feet. Patient more than satisfied.

In 48 hours the hearing improved from 14 and 48 inches for acoumeter, to over 240 inches per each ear. This improvement increased 50% more on the seventh day treatment.

STRICTURE OF EUSTACHIAN TUBE WITH ADHESIVE CATARRHAL PROCESSES IN THE TYMPANUM. Miss. D., referred to me by Dr. Clarence J. Blake,

of Boston. September 10th. 1904. When a child she had a discharge from the right ear, and recently an acute attack of streptococcic infection in the attic.

Nasal mucous membrane is dark red, nose clear, no air enters tympanum by Valsalva. The patient has closure of the right Eustachian tube and occasional tinnitus. I treat her with the catheter. The air enters tympanum with difficulty. Then applications of nitrate of silver in the naso-pharynx, and alkalol spray. After the third treatment she hears watch, left 9 inches, right 5 inches. Air goes into left tympanum by Valsalva. On the 21st of October Valsalva easy; patient feels much better. No abnormal sensations in ears. Drum membranes look very nearly normal. Watch, right ear 40 inches, left 54 inches. October 28th, no unpleasant symptoms. Patient satisfied to stop treatment.

The stricture was cured in six weeks with relief of the adhesive condition.

LOSS OF ACUOSTIC BALANCE WITH TREBAL STRICTURE. The Rev. Mr. J., 26 yers old. October 25th, 1904, complains of impaired hearing in left ear. Tuning fork lateralized to the left with much increased bone-conduction, slight ringing tinnitus. Valsalva not free. Membrane good color, slightly relaxed. Apply solution of nitrate of silver to the nares. November, 1st, Valsalva easier. On the fifth visit, November 11, hears watch 72 inches in right ear and is well pleased with improvement. Treatment: catheter, strychnia, supra-renal powder, and nitrate of silver. December, 7th, watch 7 feet; fork still lateralized in the left. Apply thin collodion dressing to left ear. Watch heard 10 feet. December 9, watch heard 15 feet by left ear. Valsalva very easy, and ready return. Application of collodion. Hears watch twice as far in left ear as in right. Left ear 30 feet, equivalent to 30-40. Right ear 15 feet, equivalent to 15-10.

Structuas cured in 6 weeks. Acoustic balance restored in 48 hours and deafness exchanged for hyperacousis.

Valvular occlusion of the external auditory meatus by a new growth, causing grave reflex symptoms. Reported before the American Otological Society 1903. Seen at the Massachusetts Charitable Eye and Ear Infirmary, through the kindness of Dr. Z. L. Jack, April, 14th, 1903. Mrs. E. W., a well nourished, neurotic woman with a haggard expression. Age 31. Declares that she can no longer endure her distress, which she is unable to describe. Complains bitterly of indescribable misery and discomfort in her head, sleeplessness due to the oppression in left ear, and severe headache, deafness and inability to do any work. read, sew or fix her attention, without extreme effort, inability to sleep and consequent irritability, nervous exhaustion and mental confusion. She said that she was helpless, no use to herself or any one else, and that she wished to die if she could not be cured. She locates the source of her trouble in her left ear, which has been treated by many "specialists," but her condition has steadily grown worse. Nose is occluded by engorged turbinates. She has a slight atrabismus. Appearance and hearing of right ear normal: left ear 3-25, conversation voice. Inspection shows a normal meatus, except that at the orifice the upper wall sags sufficiently to be in contact with the lower for a distance inwards of about half an inch, and closes the meatus like a valve. Drum membrane appears normal. On questioning the patient it appears that the meatus becomes hermetically.

Foreign body in meatus. Seen through the kindness of Dr. Gorham Bacon, February. 18th, 1904. Mr. M. C., aged 22, complains of tinnitus in left ear. Inspection shows a piece of cerumenous-looking substance resting against the drum membrane. This I readily remove with the syringe. It proves to be a bean. Patient declares that the

bean has been in his ear since his seventh year. After drying the canal, all symptoms have disappeared, and the membrane appears normal. The canal was large and had a spacious posterior pocket. There was very little cerumen and epithelium removed with the bean. The skin was separated from the bean, which was brown, about the color of a baked bean,

Vertigo from impacted cerumen, Seen through the kindness of Dr. Albert H. Buck, November, 2nd, 1903. Mr. J. B., aged 42, complains of "swinging" vertigo for the last four months. Says he "drops right in his tracks. Feels it coming from the legs up." He says his left ear has been stopped for three or four years. Inspection discloses impacted cerumen in left meatus. Hearing in the other ear good. I remove the cerumen with the syringe, and all sensations and symptoms of vertigo disappear on the instant.

Deafness of twenty years cured by removing cerumen. Seen at the Vanderbilt Clinic of the College of Physicians and Surgeons, through the kindness of Dr. Robert Lewis, Jr. October, 18th, 1903. Mr. A. B., aged 27, complains of increasing deafness in his left ear. Cerumen is seen packed in both meati. I first syringe the cerumen out the right ear. Immediately the patient is wonder-struck, declaring that he hears in the right ear for the first time. He admits later that the childhood he had heard with both ears. The membrane appears in fair condition. The hearing in the left ear is also restored by syringing out the other plug of cerumen.

Empyema of all the sinuses of the nose, seen through the kindness of Dr. John L. Adams. Mr. N. S., 20 years of age, paper-box maker. History of case dates back a year and a half. Now complains of occluded nares and profuse purulent discharge. Inspection of the nares shows purulent discharge coming from the vault and

from between the middle and lower turbinates on both sides. Transillumination shows the frontal and maxillary sinuses opaque. I remove part of both lower tubernates, at several sittings. Open up and drain the frontal sinuses through the nose. I partially remove the ethmoidal cells with the curette and Myles' punch. The sphenoid sinuses found discharging, and I open both with the curette. Open the right maxillary sinus through the middle meatus. At frequent intervals cleaning and curetting. August 27, 1904, after neglect of treatment patient returns for the first time, with frontal pain and tenderness, which is relieved by curetting and opening up the sinuses for free drainage. Patient pale and appetite poor. December 12, patient very well, with good color. Nasal secretion not yet perfectly clear.

Complicated nasal obstruction, causing serious aural and reflex disturbances, seen at St. Bartholomew's Clinic. Mr. R. S., aged 25 silk manufacturer. Complains of severe frontal, parietal and occipital headache, trifacial neuralgia, difficulty in reading and in fixing the attention for any length of time sneezing fits, severe nose-bleeds commencing spontaneously at four years of age, tinnitus, dizziness, and discharging ears. Inspection shows nose absolutely occluded by an S-shaped deflection of the septum, combined with extensive bilateral spurs. I perform a modified Asche operation under ether. After the convalescence I remove the spurs on both sides, and later on part of lower turbinates. Nasal breathing is established and all the symptoms gradually improve; headaches cease, mental condition improves, eyesight acute, and later on, December 28, the ears, without special treatment, cease discharging entirely and cicatrize. Tinnitus ceases August 13, 1904. The hearing is improved and remains good in one ear and fair in the other. All unpleasant symptoms disappeared. Last seen, December ..., 1904. Patient in the same good condition.

Mouth breathing from chronic engorgement of the turbinates, seen at the Presbyterian Hospital, October, 10th, 1904, Mr. J. P., aged 23, a cigar manufacturer. Trouble for five years with constant nasal occlusion. Inspection: Nares occluded by enormously engorged lower turbinates, mucous membrane fairly good color. I insufflate powdered supra-renal gland. The turbinates shrink leaving free nasal fossae, and disclosing a small spur. I then apply a solution of nitrate of silver, and instruct the patient to spray his nose with Dobell's solution twice daily. A week later patient is seen again. There has been no recurrence of nasal obstruction. Nares normal. All treatment stopped. The cure will probably be permanent if the patient changes his occupation.

Chronically engorged turbinates restored to normal function after our treatment, cealed, and that the vacuum forming on outer surface of the drum causes her unpleasant symptoms by drawing out the drum membrane. I remove a small free subcutaneous fibroid of the keloid type under nitrous oxide anesthesia. Wound heals in three days. Left drum membrane and hearing normal. The patient said that as soon as she quite gained her mental equilibrium after the anesthetic she found complete relief from her disagreeable symptoms, and that she now has perfect nasal breathing, a condition which she can scarcely remember to have enjoyed before. November, 1st, 1903, she still has occasional headaches, but none of the same symptoms she formerly had.

THE EFFECTS

UPON THE KIDNEYS OF VIOLENT AND PROLONGED EXERCISE
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Nearly twenty-four hundred years ago, on the morn-
ing of the twelfth of September, in the year 490 B. C., a
battle took place on the Plain of Marathon in which an
Athenian force of 10,000 men defeated the Persian army
100,000 strong. To announce this great victory a messen-
ger ran from Marathon to Athens; and to commemorate
alike the victory and his performance, a race was institu-
ted at the Ancient Olympic Games corresponding in dis-
tance and conditions to the course from Marathon to
Athens.

At the New Olympic Games in 1896 this race was revived and the course was laid out from the town of Marathon to the Stadium in Athens. This race was open to athletes from all parts of the world and was won by a Greek shepherd, none of the French, German, English or American contestants being in sight at the finish. Several members of the Boston Athletic Association entered in this race. Since 1896 an annual Marathon race has been held on Patriots' Day, April 19, by the Boston Athletic Association. The course extends from the town of Ashland to the Boston Athletic Association Club House in Boston, a distance of twenty-five miles or forty kilometers: The course is along an ordinary New England road-way for about two-thirds of the distance, and the remainder is over the macadamized park-road leading into the City of Boston. The road traverses a rolling country with a general slope downward, but two of the hills are long and trying. The runners are required to proceed on foot over the specified route, and without any assistance. There are no other restrictions, and they may partake of food and drink on the way. Each runner is accompanied by an official guard on a bicycle, usually a volunteer from the Ambulance Service of the State Militia.

This race arouses much interest and enthusiasm in Boston, and several series of observations on the runners have been made and published. In 1899 Drs. Harold Williams and Horace D. Arnold reported the results of examinations of the runners of that year in: "The Effects of Violent and Prolonged Muscular Exercise upon the Heart." (Phil. Med. Jour. June 3, 1899). In 1902 Dr. Ralph C. Larrabee published "Leucocytosis after Violent Exercise" (Jour. of Med. Research, Jan., 1902), basing his paper on a study of the blood of four contestants in the race of 1901. In the same year Dr. Larrabee published also "The Effects of Exercise on the Heart and Circulation." (Bos. Med. and Surg. Jour., Sept. 18, 1902.) In 1903 appeared "Observa

tions upon Long Distance Runners" (Bos. Med. and Surg. Jour., Feb. 19, 1903), edited by Drs. John B. Blake and Ralph C. Larrabee, with contributions upon Pulse, Weight and Temperature, from Drs. John B. Blake and David D. Scannell; upon Pulse Tracings, from Dr. Allen Cleghorn; upon the Blood, from Drs. Ralph C. Larrabee. Wilder Tilleston and William R. P. Emerson; upon the Hearts, from Drs. Ralph C. Larrabee and Lawrence W. Strong; and upon the Kidneys, from Dr. John M. Connolly. From all the publications I have drawn freely in the preparation of this paper.

Why this contest has seemed worthy of such extended study and comment will, perhaps, be better understood when it is said that the winner, usually the first two or three runners, over the distance in less than two and three-fourths hours. In this paper an attempt will be made to present the results of the examinations of the urine, made during the three years 1901, 1902 and 1903.

RESULTS.

The most important facts learned by these examinations are summarized in the following tables.

1900	No. of Urine	Am't. in cc.	COLOR	REACTION	Sp. Gr.	Urea 1 o/o	Uric Acid o/o	Chlorides o/o	Phosphates o/o	ALBUMEN
H. H. P. C.	1	120 90 2	Normal High Normal	Neut. Str. Acid	1.018 1.030	1.64 2.46	0.024 0.082	0.638 0.212	0.12 0.19	O Sl. Trace.
T. M.	2	125 120	Normal High Normal	Acid Str. Acid	1.028 1.027	2.59 2.08	0.035 0.024	0.704 0.670	0.17 0.15	O Sl. Trace.
D. G.	3	110 240	Normal Normal	Sl. Acid Str. Acid	1.025 1.021	2.90 2.40	0.082 0.018	0.795 0.273	0.14 0.30	O V. Sl. Trace.
T. C.	4	128 90	Normal High Normal	Acid Str. Acid	1.028 1.027	3.03 2.21	0.050 0.047	1.214 0.849	0.11 0.09	O Sl. Trace.
E. C. R. Jr.	5	130 120	Normal Sl. H. Normal	Sl. Acid Str. Acid	1.027 1.026	2.71 2.40	0.035 0.024	0.789 0.304	0.125 0.15	O V. Sl. Trace
H. N.	6	120 60	High High	Acid Str. Acid	1.029 1.034	2.40 1.89	— —	.. ..	.. ..	O Sl. Trace.
T. J. H. Ks.	7	30 90	Normal High Normal	Acid. Str. Acid	— 1.024	2.96 2.46	— —	.. ..	.. ..	O Trace.
H. L. W.	8	120 20	Normal High Normal	Acid Str. Acid	1.026 —	3.20 2.40	— —	.. ..	.. ..	O Trace.
J. L.	9	60 30	High Normal High Normal	Acid Str. Acid	1.029 —	2.59 2.14	— —	.. ..	.. ..	O Trace.
J. J. Q	10	90 60	High Normal High	Str. Acid Str. Acid	1.021 1.026	2.77 2.27	— —	.. ..	.. ..	Sl. Poss. Tr. Sl. Trace.
W. K. C.	11	90 30	Normal Normal	V. Sl. Acid Str. Acid	1.020 —	1.64 2.77	— —	.. ..	.. ..	O Sl. Trace.
L. B.	12 3	30 120	Normal Sl H. Normal	Acid Str. Acid	— 1.021	2.77 2.65	— —	.. ..	.. ..	O V. Sl. Trace

(1) In these quantitative estimations Frederic J. Lewis, M. D., Instructor in Histology and Embryology, Haward Medical School, gave valuable aid.

(2) After the race, in red.

(3) Completed seven miles only

1901	No. of Urine	Anit in cc.	COLOR	REACTION	Sp. Gr.	Urea 4 of°	Uric Acid of°	Chlorides of°	Phosphates of°	ALBUMEN
D.	13 5	140 200 6	Pale Normal Pale N. Sl. tur.	Acid Str. Acid	1.025 1.020	3.03 2.27	1.117 0.024	1.03 0.33	0.0300 0.1060	O 1 120
S.	14 7	130 125	Normal N. Sl. turbid	Acid Acid	1.030 1.026	3.28 2.96	0.035 0.017	0.89 0.78	0.1575 0.0900	O 1 1300
C.	15	60 65	Normal Normal	Acid Str. Acid	1.020 1.015	2.52 1.45	0.012 0.023	0.76 0.44	0.0225 0.0338	O 1 160
K.	16	140 135	Normal Normal	Acid Acid	1.025 1.030	3.28 2.65	0.053 0.141	0.80 0.38	0.0600 0.2250	O 3 140
G.	17	40 65	Pale Normal	Acid Str. Acid	1.026 1.030	3.03 2.90	.. ..	0.96 0.46	0.0675 0.1013	O 1 160
P.	18	75 130	Normal Normal tur.	Faintly Acid Acid	1.025 1.020	2.72 2.08	0.012 0.023	0.90 0.42	0.0675 0.0890	O 1 130
De V.	19	75 200	Pale Pale	Str. Acid Acid	1.027 1.022	3.10 2.58	0.128 0.012	0.80 0.34	0.1013 0.1125	O 1 160
H.-Ks.	20	80 75	Normal Normal	Acid Str. Acid	1.028 1.022	2.90 2.65	0.081 0.012	0.84 0.37	0.1350 0.0450	1 120 1 120
P.	21	90 160	Pale High Normal	Sl. Alk Str. Acid	1.025 1.022	1.96 2.02	0.025 0.012	0.89 0.27	0.0225 0.0450	O 3 140
T.	22	60 135	Pale High	Faintly Acid Str. Acid	1.018 1.027	1.51 2.40	0.059 0.108	0.78 0.38	0.0225 0.1800	O 11 240
E.	23 8	70 140	Pale Pale	Faintly Acid Faintly Acid	10.20 1.013	2.21 1.70	0.015 0.006	0.74 0.50	0.0338 0.0338	1 160 1 148
J. L.	24	140 160	Normal N. Sl. turbid	Acid Str. Acid	1.030 1.016	3.22 2.14	0.011 0.029	0.68 0.17	0.1013 0.0788	O 7 180
Mc. A.	25	35 110	Pale Normal	Str. Acid Str. Acid	1.027 1.016	2.40 2.27	.. ..	1.19 0.51	0.0563 0.1350	O O
Mc. D.	26	50 300	Sl. Pale Normal	Acid Str. Acid	1.026 1.026	3.31 2.98	.. ..	1.05 0.44	0.0300 0.2250	O 1 160
M.	27	130 125	Normal Normal	Acid Str. Acid	1.025 1.024	3.15 3.03	.. ..	1.01 0.54	0.0900 0.1140	1 120 1 148

(4) In these quantitative estimations William E. Connolly, M. D., gave valuable aid.

- (5) Ran only 18 miles
 (6) After the race in red.
 (7) Ran only 15 miles.
 (8) Ran only 20 miles.

1902	No. of Urine	Am't in c. c.	COLOR	REACTION	Sp. Gr.	Urea %	Grams of Urea in 24 hours	Uric Acid %	Chlorides %	Grams Chlorides in 24 hours	Phosphates %	ALBUMEN
C.	28	1200	Normal	Acid	1.027	2.65	31.80	0.117	0.759	9.11	0.0956	O
		1130	High	Acid	1.030	2.02	22.82	0.017	0.243	2.55	0.1013	17120
H.-Ks.	29	1250	Pale	Acid	1.030	3.15	39.375	0.081	0.807	10.09	0.0790	O
		1180	High	Acid	1.030	3.28	38.704	0.141	0.564	6.66	0.1131	17300
O.B.	30	1225	Normal	Acid	1.021	2.07	25.602	0.025	0.893	10.94	0.1060	O
	31	1120	High	Acid	1.023	2.27	25.424	0.011	0.443	4.96	0.1013	17120
	10	1500	High	Acid	1.030	2.77	41.55	0.029	1.052	15.78	0.1125	O

(9) After the race in red

(10) «31 is «30» one week after the race.

As the results for 1902 were in harmony with those for the two preceding years, the table for 1902 contains only the results of examinations made of the twenty-four hour-amounts.

A few words in explanation of these tables are necessary.

Quantity.—In most cases the quantity of urine passed after the race was quite small. The average time at which the small amounts given in the tables were passed was one and a half hours after the finish. Some of the contestants were able to pass urine almost immediately after the race. In most of these cases the quantity was rather large.

Color.—The color was in every instance higher after the race than it had been before the race. In several cases the difference was very marked. Many of the urines passed after the race were slightly turbid and a few slightly, but distinctly, smoky.

Reaction. After the race the acidity, as shown by the intensity of the color given to litmus paper, was in every case markedly increased. I greatly regret that I did not determine the acidities by titration with decinormal sodic hydrate against phenol phthalein, according to the method described by Dr. Boardman Reed (Reed: Diseases of the Stomach and Intestines, p. 155.)

Specific Gravity.—In many cases the quantity of urine secured after the race was so small that the specific gravity could not be obtained by the urinometers at hand. In the cases in which estimation could be made, there was no constant relative increase or diminution. The majority, however, showed relative diminution after the race.

Urea.—For 1900 and 1901 the percentages only could be obtained. In the majority the percentage of urea after the race was relatively diminished. Much more satisfactory are the results of the 1902 examinations, because in

three cases the twenty-four-hour amounts were obtained. In two of these cases the urea was practically the same before and after the race, in one considerably diminished. It is worthy of note that one case in which the twenty-four-hour amount was obtained one week after the race the quantity of urea had risen markedly. It would be interesting to know if this rise is constant.

These results agree very well with the results from the researches of Fink and Wislicemus in their ascent of the Faulhorn, and also with the later word of Voit and of Parkes, who says that "there is no distinct increase in the excretion of urea after muscular exercise." There is probably no immediate increase after excessive exercise. I am inclined to think, however, that with the Marathon runners there is a later increase depending, as regards the time of its occurrence, upon the time when the men regain their normal appetite. In this connection it is interesting to see that in two cases in 1900, in which it was possible to follow up the urine, the urea percentage still remained below normal three days after the race, and both men declared that they had not yet (April 22, 1900) reached their normal appetite.

The results harmonize also with those of Dr. E. A. Darling in his study on the Harvard University Crews. (Boston Med. and Surg. Journ., Vol. CXXI, N^o 10, p. 231). He well points out the agreement of these results with previous noted facts as follows: "Physiologists have proved that an increase in the urea elimination above normal limits is usually caused by an increase in proteid digestion and not by an increase in muscular action."

Of course, these examinations and any conclusions based upon them are very unsatisfactory. If we could have the urines for two weeks before the event and for two weeks after, and could secure the whole twenty-four-hour amounts, results of absolute value might issue, but it

is feared that this state of things will not soon obtain. Many of these men come from distant places to take part in the race, and usually leave for their homes as soon as possible after the race. And even those who live in the vicinity of Boston are not particularly impressed with the importance of these researches, and "with the best intentions" they, like college students, (Darling: loc. cit.) sometimes forget, and some of the urine is lost. Only those who have actual experience in the work know the difficulties in the way of a full and satisfactory examination of a runner, tired after a Marathon race.

It is unfortunate that of the three twenty-four-hour amounts, two had urea percentages relatively increased after the race. This is contrary to what is found in the majority of cases examined both in this and in the two preceding years.

If in the majority of cases the urea percentage is relatively diminished after the race, and the quantity for twenty-four hours is also diminished, as would seem to be the case, the results for total urea in the table for 1902 are probably exceptional. Of course, neither from three cases nor from thirty can inferences of any great value be drawn. The work, however, constitutes a beginning which may be elaborated.

Uric acid.—I expected the uric acid to be increased after the race. It would seem, instead, in the majority of cases, to be diminished.

Chlorides.—The chlorides were consistently diminished after the race. The results given in the table for 1901 are the most accurate, as especial pains with the chlorides were taken in this year, as already stated. It will be noted that after the race there is an average diminution of about 50% in the chloride percentages. The table for 1902 with its total twenty-four-hour quantities corroborates fully the results previously obtained.

Phosphates.—The phosphates apparently vary without law.

Albumen.—Albumen was present after the race in every urine. The amounts varied as the tables indicate. It is of interest to note here that Dr. Darling found in the twenty-four-hour amounts several days after the boat races albumen "in 48 out of 83 specimens." "The amount," he says, "was never more than a trace." And it is his opinion that "the traces found in the twenty-four-hour specimens," after a race, "really represented a considerable amount of albumen passed in one urination after rowing, diluted with non-albuminous urine passed during the rest of the day." (Darling: 10c Cit.)

With a view to ascertaining whether this opinion is correct, the urines for 1902, in which the twenty-four-hour amounts were preserved, were saved with each urination in a separate vial. It was found that in two cases the amount of albumen was greatest in the first quantity passed and rapidly diminished: but in one of the three cases the percentage in the second urination was a little more than in the first, and this in spite of the fact that the quantity of urine passed at this second urination was slightly greater than that obtained of the first. All the urinations for the twenty-four-hours contained some albumen. It is probable, then, that it would be nearer the truth to say that the quantity passed at the first urination generally contains most albumen and that this is diluted with less albuminous urine passed during the the rest of the day. I am satisfied that in the Marathon racers the albumen persists, in the majority of cases, for at least thirty-six hours after the race; but from two urines which I obtained in 1900 three days after the race, and from one urine passed one week after the 1902 race, albumen was entirely absent. The quick recovery is remarkable when attention is paid to the sediment found in these cases immediately after the

race. The fact that in three years only four contestants had albumen just before the race after the training that most had undergone is also noteworthy in contrast with "the albuminuria in the urine of a large proportion of the squad under ordinary conditions of training" for the crews. (Darling: loc. cit.)

Sugar.—Sugar was absent in all cases before the race. After the race a slight reduction of Fehling's solution was noticed in two urines of the year 1900. In both of these there had been no reduction on boiling, and the reduction was not visible at the end of eight hours, but was seen at the end of twenty-four hours. It was very slight and was probably not due to sugar.

Sediment.—Like the chlorides, the sediments were consistently alike.

In most of the urines before the race only a few squamous cells were found in the sediment.

In a few of the sediments a rare calcic oxalate crystal was found, and in three a rare acid sodic urate crystal,

In the cases before the race which contained albumen, however, the sediments were alike in showing an exceedingly rare pure hyaline cast, a few leucocytes, a few small round cells and an exceedingly rare abnormal blood globule.

After the race every sediment contained large numbers of hyaline and fine granular casts, a few coarse granular and epithelial casts. There was in all cases more or less blood, normal and abnormal, free and on casts. The amount of blood usually varied directly as the amount of albumen. Brown granular casts were found rarely in many of the sediments, and calcic oxalate crystals, both primary and secondary, in the majority. Spermatozoa were found in several cases. Leucocytes were not many, and there were only a few renal cells free, though many were

seen adherent to the casts. The sediments from the urines of several runners who completed distances of from only seven miles up to fourteen and eighteen differed in no respect from those of the contestants who finished. The urines of two of the bicycle riders detailed to accompany the runners also had sediments exactly like those of the runners themselves. In the specimens obtained three days and one week after the race only a few squamous cells were found.

SUMMARY.

The examination of the urine shows that in every case an active hyperemia is developed during the race, probably due largely to the irritation from the "toxins of fatigue," inasmuch as the word of Dr. Allen Cleghorn has shown that the blood pressure is not increased. This condition clears up quickly, as albumen and casts had disappeared in all the cases examined one week after the race.

The *amount* of urine for twenty-four hours is lessened, the *color* becomes higher, the *specific gravity* rises and the *reaction* becomes more intensely acid, *Albumen* appears in quantities varying from slightest possible trace to a trace, and in the *sediment* we find in every instance hyaline and find granular casts, a few coarse granular and epithelial casts and more or less blood, normal and abnormal, free and on casts. Rare brown granular casts are found in some sediments, and calcic oxalate crystals in the majority.

The *urea* is not increased after the race, but, on the contrary, appears in the majority of cases to be less for the first twenty-four hours following the race than for the last twenty-four hours before the race. By the end of a week, however, it has again risen to normal.

The *chlorides* are markedly diminished after the race, It is probable that the output of *uric acid* is diminished.

and that of *phosphorus* increased, but the results vary so much that no definite conclusions can be drawn.

REMARKS.

As we study the runners in the Marathon race and consider the circumstances under which they run, the character of the roads, the numerous hills, the frequently unfavorable weather conditions, add the speed with which they cover the distance, we cannot help realizing how wonderful the human body is in its ability to endure so much with so little evil result. In the three years during which these observations were made there was not one case of serious, persistent after-effects, and the rapidity with which the hearts and kidneys returned to normal is truly astonishing. As will be noted from the tables, several of these men entered this contest more than once, and I have yet to hear that even in these cases any injury whatever has resulted. For instance, Caffrey, in 1900, won the race in two hours, thirty-nine minutes, forty-four and two-fifths seconds, thus breaking all previous records for time. Yet the same runner the following year, 1901, again won in the remarkable time of two hours, twenty-nine minutes, twenty-three and three-fifths seconds, thus lowering his own former record by over ten minutes and establishing the record which has not since be equalled. But Caffrey was in excellent condition at the finish in both years, and after his phenomenal run in 1901, he remarked that he felt able to run back again if it were necessary for him to do so.

Another feature which on second thought appears natural enough, but at first sight causes some surprise, is that the leaders, those runners who make the fastest time, are generally in the best condition at the finish and recover soonest from the effects of their strenuous exertions. This is due, no doubt, to the fact that they are endowed by

nature with capable hearts and other organs and that they have done most by proper preliminary training to inure their bodies to withstand this effort, for it was probably the lack of this preliminary training that cost the original runner his life. In fact, this Marathon race is for all these men only the climax of a long series of similar efforts made in their practice runs, in preparation for the great event. It is interesting to know that the unpleasant effects of which the runners most complain and which persisted longest were blisters on the soles of the feet.

It would be valuable supplement to these observations if the sediments from the urines of race horses could be examined after some great race.

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THE VALUE

**OF THE PRESENT QUANTITATIVE TESTS FOR HEARING: WITH
THE DEMONSTRATION OF A NEW APPARATUS.**

Many methods and various contrivances have been and are still used in acoumetry. The more complicated ones have never been popular, while the simpler means, though old, are still used and are still the generally accepted standard in spite of their lack of accuracy and the difficulties of application. For the most part the complicated machines are electric devices and although strongly recommended, are open to nearly the same objections as the simpler means. Their special disadvantages are due to changes in the electric current, and their intricate construction.

The Committee of Acoumetry of the last International Convention of Otology reported on the choice of a simple and practical acoumetric formula, advising the oldest and simplest means of testing hearing. They stated that they did so in spite of the inherent imperfections in these methods, because none better were to be had. The tests

recommended by the Committee were: Whispered and conversational speech, acouimeter or watch, tuning forks and König rods.

The results of hearing tests vary considerably, One obtains different results if one brings the sounding body towards the patient from those obtained by taking it further away. As a rule the sounds are heard much further when the body recedes than when it approaches. Auditory after-impressions and psychological states explain these phenomena. The ear is not unlike the eye; a receding object is distinguishable much further than the same object when it approaches the eye from beyond the range of vision.

During the tests the eyes of the patient must be covered or directed away from the operator, whose reflected image must not be allowed to reach the patient. It is remarkable how much a slight visual hint will do in the way of increasing the hearing distance of a quick, intelligent patient.

Sentences and words are heard correctly much further than disconnected polysyllables. Polysyllables again are heard much further than disconnected monosyllables, because in each of these cases there is less opportunity to supply the sound by clear guessing when it is not distinctly heard.

One must bear in mind that a little sound entering the other ear increases greatly the sound perception in the ear under examination, since binaural audition is much more perfect than monaural, and therefore the ear not under test should be hermetically closed. A slight pressure with the moistened finger in the meatus is the simplest way of accomplishing this. Too much pressure in the meatus will lower the sound perception of the other ear, and therefore must be avoided. The other precautionary measures in unilateral testing are: First try with the

other ear closed, then with both ears closed. The difference thus found in the results can be credited to the ear under examination, but this gives no sound basis of comparison.

Quantitative hearing tests by air conduction should cover the whole auditory field for high and low notes alike, because the total quantitative estimate is made up of the sum of its integral parts, and no part of the scale should be omitted. Therefore, the tuning fork and Kónig's rods test are included among the quantitative tests.

Whispering Test.—The forced whisper, using the residual air after a natural expiration, gives a more accurate and more easily repeated test than the conversation voice, but tests obtained in this way are not the measure of the hearing for spoken words, nor can this test be repeated with perfect accuracy, because the intensity, pitch and quality are not constant. In whispered tests no different pitch and intensity on the various vowel and consonant sounds must not be forgotten. These require that the same words must be used to make the tests comparable. A whisper allows a rough test of the auditory field by the use of letters having a wide range on the musical scale, from Ra to S., covering the whole auditory field.

The different intensity and pitch of the letter sounds give five different carrying powers. Unfortunately there is no agreement among the various authors as to the actual relative importance or the true value of these factors. Vowel sounds vary in different languages and dialects, and are influenced by the consonant preceding or following them. Consonants have a very wide range of intensity and pitch.

Conversational Test.—The difficulties in testing with the conversational voice are considerable, and it is impossible to eliminate the conditions which cause inaccuracies in the results. These are chiefly the variability in intensity, pitch, clearness of articulation, and quality, as well as the

accent of the examiner. Practice diminishes the variations which the voice shows at different times, but never wholly overcomes them. They make a great difference in the carrying power of the voice, and its intelligibility, sufficient to prevent the accurate comparison of one observer's results with another's, or with his own previous tests. The different values of the vowels and consonants must be borne in mind, as in the whispered test.

In unilateral testing it is admitted that with the spoken voice, the sound enters the other ear, no matter how it may be closed. For this reason, spoken voice tests can approximate accuracy only when both ears are tested together or when the other ear is much deafer than the one under examination. The usual method of making unilateral tests is to compare the results found with one ear closed, and found with both ears closed. This gives no sound basis of comparison, but in practice the difference found is credited to the ear under examination.

Politzer emphasizes the value of testing bilateral hearing, because it gives the true hearing efficiency possessed by the patient for the avocations of life, and does away with the attempt to the test the voice perception of one ear alone, which is, as I stated, always inaccurate.

Voice tests with words, in cases where there is a slow action of the auditory word memory, will show apparently less perfect hearing compared to mechanical sounds. Just as reading is slow when the visual word memory acts slowly. Familiar sounds or known voices are heard more distinctly than new ones. The faculty some people have of reading the lips is another possible source of error which it is hard to eliminate entirely, without the greatest care. Another objection to speaking voice tests is the considerable space required by the tests for ordinary or even low conversational voice. There is no constant relation between the hearing for whispered and that for spoken

words. For these various reasons the mechanical tests are usually used in addition to the voice tests.

Why else use the mechanical tests? Unless as a control for the voice tests?

Mechanical testing devices; watch, acoumeter and tuning fork, cannot be duplicated exactly on commercial scale.

Their dissimilarity makes the results of tests with different instruments not exactly comparable. It makes a considerable difference when and how the sounding body is held in relation to ear tested. Below and in front of the orifice of the meatus is the direction in which the sound is heard furthest, because that is, at right angles to the plane of the auricle.

Acoumeter and Watch.—In testing with the acoumeter or watch it must be borne in mind that they are heard furthest when held at right angles to the plane of the auricle. Therefore they should always be held in the same relative position to the auricle, which usually faces outward, a little forward and downward. A very considerable difference is noted depending on the way the sounding body is held. For instance, a watch held in the hollow of the hand with the broad surface towards the ear is heard much further than if the watch is suspended with the narrow side towards the ear. For these reason it is apparent that the sounding body should always be held in the same way as watch, and in the same relative position to the auricle.

The acoumeter and watch belong to the group of high pitched sounds, and bear no constant relation to the capacity for speech perception. I have at present under treatment a civil service applicant, aged 25, who failed of appointment because the tick of a watch was not sufficiently well heard in one ear, but no defect of voice hearing was notic-

ed. Another case: A man, 43 years old; watch left ear O. S. 5 60, right ear O. D. 60.60. Voice left ear O. S. 36.40, right ear O. D. 40.40. A more common case is the man who can hear the mechanical sounds well, and has poor voice perception.

Variations in tests made with the acoumeter may arise from the difference in pitch, intensity and tone, between the various samples and the careless way in which they are sounded.

One watch cannot be compared to another. The same watch varies in pitch and intensity with the time of day and the cleanliness of its works, different watches have a great variation.

Tuning fork tests bear no relation to the hearing for speech. One fork cannot be well compared with another, because of the varying properties of the various samples. Their curves of intensity are very variable and vary with differing initial impulses, which again are very difficult of regulation. Authors do not agree on the curve of the intensity in relation to the time of vibration of tuning forks. Their relation is very complex. In using the tuning fork the interference zones must be borne in mind, and the same side of the fork should always be directed toward the meatus. In testing the length of perception the distance must be constant, In some cases the after-impression continues longer than the sound can be heard; in others the ear becomes exhausted when the sound is prolonged, but if it is interrupted it is perceived much longer. The fork should not be held opposite the meatus longer than is necessary to enable the patient to observe the presence or absence of sensation of sound. It should then be removed from the auditory zone for three or four seconds, the patient meantime being requested to say whether he still hears it or not. The fork should then be brought opposite the meatus again to see if he will hear it again.

To determine the auditory field, the scale should be divided into four zones, according to the Congressional Committee's report: Up to 64 V. D., from 64 to 256 V. d., from 256 again to 3096 V. D., and lastly, those above 3096 V. D. These zones correspond to the voice sounds, 1st, counter octave; 2d, the chest register; 3d, the vowel voice; and finally high pitched consonants.

The amplitude of the initial vibration of a tuning fork can be best measured by the method of Gradnigo. In forks of 256 V. D. the Gradnigo-Struycher method is best, and for 3096 V. D. Schwiegelow's method is recommended. For testing the low limit, use 24, 32 and 48 V. D. The 16 V. D. has been discarded. With these low forks care must be taken to make the patient distinguish between the flutter of the air and the note of the fork.

Kónig's rods are recommended for testing sound perception for the scale above the range of the forks, and to determine the upper limit of perception. The same care should be used with these instruments as with the watch and acoumeter, except that errors are more easily avoided. The chief error is that arising from the patient's mistaking the initial blow for the musical note of the rod.

Otologists have labored long for some ideally perfect method of testing the hearing, but till now all have failed.

What sound does the deaf patient wish to hear? Is it the tick of a watch, the click of an acoumeter or the note of the tuning fork? No. Is it the human voice? It is the voice of his fellow beings which can alone bridge over that awful chasm of palpable silence or chaotic uproar which surrounds the deaf, parting him from acquaintances, friends and family. On account of the imperfections of the voice tests other means are used: watchmatch, the acoumeter, the tuning fork, and the Kónig rods. All these methods have difficulties in their application, and inaccuracies are apt to creep in as I have mentioned. But all of

these are used to determine whether the patient can hear in ordinary life the voice of his fellow man.

The fact is that the expert is forced to the use of mechanical tests because the voice tests are imperfect and unsatisfactory in some respects, while the inaccuracies and difficulties of these mechanical tests and above all the fact that in the end they do not determine whether or not the voice can be heard, oblige him to resort to the voice tests. He passes from one to the other and back, and neither is satisfactory, neither is accurate.

Realizing these difficulties, I have been experimenting for several years to endeavour to make some instrument or machine which will secure accuracy and a definite standard and at the same time determine whether the patient can hear the human voice.

It seemed that a phonograph would provide the standard voice, that it could be controlled and would reproduce the same sound with the same intensity and pitch on all occasions.

I soon found many difficulties. There were no standard cylinders which were suitable. The instruments had to be adapted for my use. Before they could be of practical use they had to be so arranged in order that the sound would not escape and thus allow too much to reach the patient. This I have overcome by a sound-proof box.

Then I had to get some device which would enable the operator at will to turn the sound on or off of either ear without the knowledge of the patient.

But most important of all, I had to devise a method by which the amount of sound reaching the patient could be accurately gauged and at the same time be under control of the expert.

I had many failures, but learned a little from each until I finally secured a machine which has measurably at

least cured most of these defects. I shall take great pleasure in showing it to you and have you test it. It certainly does provide a standard voice tests which can be applied to either ear at the wish of the operator and without the knowledge of the patient. It certainly provides a standard for the comparison of tests equal to those used by ophthalmologists.

I would seem as if reasonable care taken in the making of the cylinders, instruments and appliances, would make them all uniform so that the tests made by one operator on one instrument could be compared with those made by another operator or a different instrument.

My machine allows the operator to determine accurately the limit at which the patient is able to hear sufficiently distinctly to repeat the words spoken by the machine. Distance is no longer needed for the voice tests.

My acoumeter provides a sure method of detecting feigned deafness, an important matter in European countries. If the deafness feigned is anything short of absolute, the malingerer will be led into a trap. He is unable to give answers consistent with the varying positions of the graduating valve combined with changes in the malingerer's valve, for he loses all idea of the intensity of the sound because distance is eliminated. When the malingerer feigns deafness in only one ear, the malingerer's valve, turning the sound on and off, rapidly alternating or simultaneously, distracts the patient; he can not give replies consistent with deafness.

The previous methods of testing applied only to somewhat advanced degrees of deafness, which is a very serious loss to the patient; as all otologists know that the worst forms of progressive deafness, if taken in time, offer a comparatively encouraging prognosis.

My machine besides allowing the detection of the

slightest loss of hearing, gives a test for hyperacusis. It will test a hyperacoustic patient in a small office.

My machine reduces extraneous sound to a minimum, doing away with the necessity of testing in a perfectly quiet office.

My acoumeter is the best test for pitch and intensity of the alphabetical sounds which are equivalent to the logarithmic value of the letters.

My acoumeter is the best means of measuring the psychological factor in audition. This element enters into hearing to a very large extent, and forms one of the most important factors in determining the hearing efficiency. Its true value has not been previously appreciated. The very marked increase of the hearing for polysyllables over disconnected monosyllables and of a sentence over disconnected monosyllables and of a sentence over disconnected polysyllables is due to this psychological factor, or the power of attention and quickness of guessing. In normal hearing, much is inferred from the context. The accurate adjustment of this machine allows the accurate determination of this important factor in hearing, which has not been previously possible.

My acoumeter readily measures fatigue of the hearing mechanism.

My machine is an acoustic masseur which has many advantages for very deaf people and others. I suggest the phonograph as the best and easiest means of giving deaf ears the exercise they require to prevent the rapid decrease of hearing consequent of disuse, and to prevent the psychological deafness which is much an important factor with very deaf ears, preventing the realization of improvement consequent on the alleviation of the cause. The good results of hearing exercises are best shown in deafness following suppuration of the ear, where, with ar-

tificial aids to hearing. the hearing will often increase over a long period of time. This improvement is due to the psychical element, becoming more and more favorable to sound perception, as well as to the mechanical improvement of the sound conducting mechanism, and the functional exercise of the perceptive mechanism.

SUMMARY.

The methods at present in use do not give adequate tests for the perception of the human voice, nor do they give results which can be compared. My phonograph acoumeter does all of these things and more. It overcomes the chief difficulties and inaccuracies formerly accompanying quantitative hearing tests. It gives a satisfaction and accuracy not hitherto attained. It furnishes a test with the human voice, which does not vary and can be multiplied and repeated indefinitely. Unilateral as well as bilateral tests can be applied without doubt or error. Eyesight aids are eliminated. It furnishes a sure way of detecting all feigned deafness short of total deafness; and it is an ideal machine for furnishing acoustic exercise which has been recommended in the treatment of deafness.

OPERATION.

I prefer monosyllables rather than longer words, for the phonograph test, because they have simpler and fewer sound effects giving definite results. Polysyllables give the patient opportunity to guess the sounds not distinctly heard just as in a sentence a clever person easily supplies the words omitted.

The operator is provided with a slip of paper on which the words of the records are printed to enable him to check the words as the patient repeats them after the phonograph.

The patient is instructed to repeat all he hears. His ear tubes are adjusted in his ears, to examiner taking his own tubes. The indicator is placed at 100% on the dial and the phonograph is started. The operator slowly moves the indicator until the patient remarks that he hears but does not understand, or repeats the words incoherently. Then the examiner, still moving the indicator, checks the words which the patient repeats correctly on the word list previously provided. When the patient repeats at least seventy-five percent of the words correctly, out of ten or fifteen words, the scale is read and the test is completed. The reading of the scale gives the acuteness of hearing possessed by the patient. To get the absolute hearing, this number should be squared and multiplied by the percent, of words accurately repeated. A quick way of writing it is in the form of a fraction, the numerator being the reading of the scale, and the denominator the percent. of words repeated. The ears are tested separately in the same way, by adjusting the three-way valve for the separate ears.

In order to test unilateral malingering, the indicator is placed at a point at which the malingerer hears readily by both ears together, and the operator quickly turning the malingerer's valve with his left hand, cuts off one or the other of the ears, but never both at once. At the same time he marks the words repeated correctly by the patient, with R for right, and L for left, and O for both, or some similar symbol. The result will show conclusively, first, that the patient can hear; second, that hearing of the two ears bears a constant proportion each to the other, if there is no malingering. If the patient is a malingerer can be quick enough to detect accurately every change in the volume and direction of the sound. The same procedure combined with changes in the graduating valve serves to detect bilateral feigned deafness.

THE MECHANISM AND MANAGEMENT OF BREECH PRESENTATIONS

BY DR. M. MC. LEAN.— 29 EAST 116 ST. NEW YORK.

In this day of “great things” when our profession is reaching out with eager expectation to every new idea, it may seem somewhat commonplace and trite, to ask your attention to a subject of such ordinary import as one of the simpler problems of obstetrics.

But, if I shall feel sure of one thing, and that is that we shall have for our consideration a theme which *ought* to be of interest to every practitioner in every place.

For, here we have a condition in which the “great professor from the city” cannot secure a monopoly: and we shall not have incentive nor desire, to refer it to such august authority.

For, in the experience of every man, he must some day or other,—and perhaps frequently—stand face to face with just such cases as these which we have now before us for consideration.

And, to no man ought such consideration and study be more interesting and attractive, than to the man who may be practising his calling in such places and under such conditions that he is obliged to rely on his *own* resources and fight the battle for his patient's life manfully and *alone*.

It gives me especial pleasure to have this opportunity to offer what little I have to say on this subject, before so representative a body of scientific men; who have gathered together from so many parts of this great continent, for mutual edification and advancement in our matchless profession: and I beg that the practical features of this modest paper may, to some extent at least, atone for its many imperfections.

A clear understanding of the mechanism of labor in its various aspects, is absolutely necessary to the obstetrician in his endeavours to give intelligent and scientific assistance to the efforts of nature, in the function of child-bearing.

Certain mechanical laws and principles must not only be recognised; but must be so clearly kept in mind that, at the important moment, when their observance is of the greatest consequence, they may stand out clearly, as landmarks to guide us in our conduct of any case.

As in the consideration of all other scientific problems, it is necessary and essential that the analysis, aiming at a solution, should reach back to the fundamental principles involved, to the different factors which bear upon the case from beginning to end.

If it be constantly borne in mind that the parturient act is a *complex* function, involving, not only various *active* forces of expulsion, leverage &c, and *passive* forces of resistance points; but also certain *tissue changes* which alter

the relation between power and resistance at every point through the whole act; then a safer and more conservative appreciation of any difficulty will naturally result.

If, on the other hand, such a function as we have under consideration, be viewed as a simple question of so much expulsive force, overcoming so much resistance; we shall often be led into errors which are destructive to tissues of both mother and child, and even to life itself.

It is not sufficient that we rely on individual discretion, to exercise calm deliberate estimate of a given *difficulty* occurring in labor; unless full weight has been given *a priori*, to the forces involved in a similar case which is *without* the difficulty or abnormality.

For we have all of the disturbing influences of fears and importunities of sympathising friends; as well as the unhappy manifestations of suffering on the part of the mother, to make deliberate judgment more difficult, than in almost any others presenting themselves for solution.

It is one thing to judicially determine in a scientific meeting, what may be the proper means to employ in this or that case of dystocia; but it is quite another matter in practice, at the bedside, in a private house, to make a careful, sound, and reliable decisions to the exact steps to be taken in like circumstances, to have so clear a view of the whole situation as to make it safe and expedient to take a firm stand in regard to the management.

The truth of this proposition has been so apparent to me in a pretty extended experience, that I have personally felt the necessity of very well grounded rules to govern my actions, when confronted by questions such as we are considering.

And thus, it has been the result of my observations, that he who is best equipped with a clear understanding of all the factors involved in a given case—keeping them

uppermost in his mind at the critical moment—will display the greater skill in rendering assistance to nature's efforts, in case of difficulty or complication. In this way only can the wide divergence of individual experiences be explained in Breech Presentations.

And it is on account of this great difference in results of various methods of managing certain oft occurring cases, that I have felt impelled, or encouraged, to present for your consideration, so familiar a subject as the care of Labor with Breech Presentation.

It would be interesting, did time permit, to note the various opinions as to the dangers to the child, as "laid down in the books" by representative writers on obstetrics. But I will not attempt to cite quotations from these sources to exemplify the point I wish to make. Suffice it to say, that the mortality to the child in breech cases is given, as all the way from one in every four cases 25%, to one in every ten cases or 10%.

Such a tremendous difference in the ratio requires some explanation; and it is to this end that I venture to ask your attention to a few points concerning the mechanism of such labors; with somewhat definite allusion to the mechanical difficulties arising to present a picture of dystocia which may so frequently sacrifice the life of the child.

First, let us consider the normal progress of an unassisted, undisturbed case, of breech presentation.

In such a case, labor goes on very much as in an ordinary cephalic presentation; expect that the first stage is apt to be more tedious, the pains less efficient, and often the amniotic fluid is apt to be partially lost by very early rupture of the sac. Indeed it is a significant hint of such a presentation, when the amnion is found leaking away, even before the first appreciable uterine contractions be-

come apparent. (Of course the meconium may appear in the discharges later also, suggesting more strongly the probability of a presentation of the pelvic and of the fetus).

The second stage—of expulsion—*may* progress as in any other normal case, and the child be extruded safely; when the labor is completed in the same manner as in a normal cephalic presentation.

A very important question suggests itself right here: how many cases of breech presentation would result in death to the child if no interference or assistance whatever should be given by the attendant?

This is very difficult to determine, inasmuch as it is in just these cases that we feel called upon to lend a helping hand, in order to insure the rapid and safe delivery of the child. And I think I shall be able to show that in a considerable number of cases, our efforts at assistance may prove an added danger to the child, thus giving a false estimate or value to the risks due to the presentation itself.

I have attempted to get at the facts in a considerable number of cases as they are recorded; but found only two fatal cases in which the labor had gone practically through the second stage, without *any interference whatever* on the part of the attendant.

The conditions existing in those two cases, will be shown to be very interesting and suggestive; as bearing upon certain questions of the mechanism of delivery under normal circumstances—the breech presenting.

In each of the cases alluded to, the dead child lay with the head undelivered—the chin just within the vagina;—*the arms, with the rest of the body of course, fully delivered*, and lying between the thighs of the mother. The fact that full delivery of the child had been successfully accomplished, except that the head alone remained within the vulvar orifice, is a most important one. In both of these cases

the arms had evidently offered no opposition or impediment to the passage of the child. The child had been completely extruded from the uterus, and the voluntary efforts had failed to come to the rescue, and expel the head entirely from the vagina.

From that situation the head was instantly and easily lifted, without any traction whatever, by the attendant on his arrival at the bedside.

Here is food for reflection, indeed; and from so meagre a showing even, we may deduce valuable theories.

The typical case, then, of normal delivery by the breech would seem to be one in which the fetus is folded in the usual position—with the limbs all folded—flexed in front of the body—the arms lying close against the thorax—the legs and thighs lying snugly against the abdomen—the head well flexed. This order being maintained—*full dilatation and softening of all the tissues* of the passage having been accomplished; the child is driven down by the vis a tergo—the successively presenting parts describing the somewhat spiral course which is followed in the strictly regular mechanism of all normal labors.

In such cases, where normal relations obtain between passage and passenger, the delivery will doubtless be terminated with possibly little or no more danger to the child than in ordinary cephalic presentations.

In a few cases, as in the two instances related above, the child may be successfully extruded from the *uterus*; and then, there being no sufficient reflex stimulus upon the vagina, rectum, perineum &c., to arouse the voluntary muscular effort; the *head* may remain within the vulvar commissure, and the child die by asphyxia pure and simple.

But such a sacrifice will surely be of rare occurrence, and will represent but a very small minority of the cases which result in death to the child in delivery.

The head of the living child being driven down safely to the bottom of the pelvis, there need be no dangerous delay in its complete expulsion or extraction; and just here is the very crux of the problem. By what means by what fortunate conditions combined, may such a descent of the head be secured?

First of all the soft parts of the parturient canal must be thoroughly softened, by the natural processes which obtain in the preparations of the passage for the important event of the passing body. Particularly is it necessary that the cervix uteri be *dilated fully* and not partially so; and the vaginal orifice should in like manner have become well softened and relaxed, or distensible. Then the arms must be retained in the proper position of flexion in front of the body the hands being not above the line occupied by the chin.

Indeed it is a self evident proposition that if the diameter of the hands or arms be added to the diameter of the head at the superior strait, all progress toward delivery becomes at once mechanically obstructed, and dangerous delay is caused, just while asphyxiating pressure is being made upon the funis. This mechanical difficulty must be climated promptly or the child's life is surely lost.

Every intelligent practitioner, therefore, recognizes this fact, and knows that he must at once get rid of the vicious position of the locked arms; but not every practitioner gives weight sufficient to the fact that this accidental displacement of the arms is *the rock upon which* these young lives are nearly always wrecked; and it must therefore be guarded against,—avoided,—overcome, by every means possible, as the first step towards the salvation of the imperilled child.

Next in order and importance comes the necessity of having the head well flexed, so that the narrow diameters

may be presented, in the proper directions, in the straits and canal.

For, if the head become extended---the chin hooking up above the brim---thus giving the longest diameters as presenting---we shall have head arrested long enough to make a fatal delay before we may relieve the placental asphyxiation.

Let us therefore look into the causation of these two disturbances of a safe mechanism, and see if they may generally be avoided, and those remove the greater part by far, of all the risks attending a delivery by the breech.

While in a few cases it may seem necessary to facilitate dilatation, and descent of the breech, to interfere and bring down one or both feet; it is a decided disadvantage in the vast majority of cases; inasmuch as it allows the body or *causes* the body to be extruded *through* an *imperfectly dilated os*.

Then, when pressure upon the cord begins to do its work---its dangerous work---(and that pressure is, under these conditions, made earlier and more severe) we have the very difficult problem to confront us, of securing the passage of the arms through the tightly encircling os and the much greater diameters of the head to squeeze past the same constricting ring.

Moreover if we make any traction whatever upon the parts first extruded through the vulva, there is decided probability that we shall drawn down the body sufficiently to cause the arms to leave safe position on the thorax, and become entangled, as it were in the constructing cervical tissues; thus ensuring their extension upwards and alongside of the aftercoming head.

So promptly and so frequently does this occur especially where the ankles are used for a traction handle that I have long believed that there may be a reflexaction excit-

ed in the muscles of the child itself, sufficient at least to lift the elbows away from their place of safety, if not to cause the hands to be thrust upwards above the strait.

However this may be, it is a demonstrable fact, that the arms are almost certainly displaced upwards under these circumstances, where such traction is made.

The body being well delivered, with the spine of the child corresponding to the abdomen of the mother, that is, with the back looking to the front, the chin may be extended badly not only by its impinging on the soft parts, but also by its being dragged around too far to the back of the pelvis; so that it is being opposed to the shorter diameters of the inlet to the bony canal, instead of occupying the oblique diameters where there is found greater room.

The proper management, therefore, of a breech case must be based upon such care and assistance, as will avoid such obstacles, or remove them in the quickest and safest manner.

First, then, let it be borne in mind, that very slow and deliberate first stage must be encouraged from the outset. Let no opportunities on the part of the patient or her friends induce us to hurry the descent of any part of the child before safe preparatory softening and dilation have taken place.

Next, as soon as the breech has rotated, emerged, and restored itself in position again, be ready to encourage and assist the patient in making her fullest exertions at expulsion so soon as the pelvis of the child shall have passed the vulva.

At this point the strong voluntary efforts of the mother will generally be needed; therefore, chloroform, if used at all, should be given only to a degree of a placebo. Assistance should be given by manual pressure over the contracting uterus with the cupped hand grasping the head so as to direct the chin into the strait.

No *traction whatever* should be made on the body or legs; but a hand should be slipped quickly under the thorax of the child, along the posterior wall of the vagina to find the position of the arms.

The elbows (or more, probably the shoulders) being within reach, one arm and then the other is to be rapidly swept down over the thorax, and through the vulva.

At this very time, the properly directed forces being *applied above and without*, the head will quickly follow into the hollow of the sacrum.

Now the body being thrown almost over unto the abdomen of the mother, the chin will descend and cross the perineum, and in a few seconds the head will be delivered entirely.

But should the arms unfortunately have become displaced upwards, so that the elbows are alongside of the head; considerable difficulty will be experienced in dislodging them. It is fairly fanciful and dilusive to attempt to follow directions not infrequently laid down by writers, "to hook the finger in the flexure of the elbow" and thus sweep down the arm, while it is thus extended up into the uterus itself.

The *elbow* is far above our reach; and it is impossible to hook the finger in its flexure. Oftentimes the extension of the arms is so great and the constriction of the servica ring so firm, that the clavicles themselves are forced up alongside the base of the skull, so that the nearest flexure we can reach is the space on *top of the shoulder* as it is jammed against the head.

In some instances this posture is so vicious that the humerus will of necessity be fractured in bringing it through the cervix.

But if it be remembered that so long as the uterus is

allowed to, or compelled to keep in close contact with the head—the aftercoming head,—the arms cannot rise to a dangerous position, we will see the importance of substituting *pressure over the fundus* for all traction from below.

As the manipulation of the arms is of vital importance and the tactile sense of the obstetrician is essential to watch and direct the changes within; it is desirable that the pressure be supplied from above by an intelligent and obedient assistant in some difficult cases. For this purpose I generally equip myself with the assistance of a nurse specially trained for this particular work.

My rule is to conduct the first stage of labor as deliberately as possible; not acquainting the patient herself with the possible difficulties ahead, until the breech is at the vulva. Then I try to *detain* the breech through a fair number of pains, in order to secure the conditions desired the softening and relaxation of tissues.

As soon as expulsion becomes imminent I explain to the mother that, in order to save her child, she must help herself without much chloroform, and act as I call upon her to do. Then, so soon as the *pelvis* and thighs are well extruded, my assistant seizes the fundus with the head in the grasp, and makes firm pressure as I direct, combined with the efforts of the mother which I call forth by previous arrangement.

Thus, in the great majority of cases, the aftercoming head is forced into the pelvis as the body is thrown well over the pubis and causes the head to sweep forwards, the face passing almost at a bound over the perineum.

In one case only I have found it necessary or desirable to extract the head with the forceps; so tightly was it grasped in the canal. But in almost every case the head may be lifted from the inferior strait by grasping it with the finger *on either side of the coccyx* so as to flex the head

forcibly and not permit the face to drag behind, as descent progresses. The ease and certainty with which the head may be controlled by this method of manipulation will surprise any one who has tried it for the first time and *no so called* "support of the perineum" is to be compared with it in efficiency. This manipulation of the head as it begins to make pressure on the soft parts about the pelvic floor is so valuable that I desire to make it clearly understood.

As the head begins to distend the parts involving the anus, the perineum, and the tissues *posterior* to the anus, as well as the vulvar orifice; the operator should make pressure on the tissues on the right and left sides of the coccyx just anterior to the sacrosciatic ligaments. The head will be felt distinctly and may be grasped in such a manner as to exert perfect leverage and control of the passing child.

This pressure may be applied in two ways: first, by using the separated fingers of one hand; the middle finger being on one side of the coccyx, and the third or ring finger on the other; second, by using the tips of the fingers of one hand and one side and the fingers of the other hand on the opposite side. It will be seen that this method acts by making direct pressure at a point which allows the force to be exerted from behind forwards, thus not only assisting the progress of the passenger, but also tending to relieve the tension of the soft tissues by dragging them forwards.

It is to be noted that all of this force is exerted far *behind the anal opening*, and does not touch the *perineum at all*. It is undesirable, unscientific, and uncleanly to attempt to manipulate the head by inserting the fingers into the rectum; and pressure of any kind on the perineal tissues is harmful from every standpoint. Dragging the jaw

down by inserting the finger in the child's mouth is inefficacious and sacrifices valuable time in most instances.

In a word properly directed pressure applied, first over the abdomen while the head is at or above the superior strait; and afterwards at the points indicated near the coccyx. when the head has arrived at the inferior strait or beyond; will accomplish more for the safe delivery of the child than all other means.

Following these rules as I have stated them, I have kept record of my last forty-three consecutive cases born by the breech; including twenty-seven primiparae; a number of cases of difficult version, and other conditions of dystocia. And these I have lost *one child*—that being the thirty-ninth case, in which there was a marked deformity of the pelvis and was really a fit case for Caesarian section. This record, of so low a mortality as one in forty-three in a series of difficult cases is of value—suggesting the correctness of most of the propositions which we have here submitted for your consideration.

One of the most interesting points in the mechanism of this particular phase of labor, is the behaviour of the arms of the fetus in all cases which have in no way been interfered with.

I have been unable to find record of a case in which the child was arrested in its descent by the *displaced arms*; and lost *on this account; in cases which had been left entirely to natures efforts.*

Such cases may have occurred; but if so they are so rare as to be beyond my ability to find reliable record of them.

This fact has been the foundation of my plan for the delivery of Breech cases; and I am convinced, that a full appreciation of the importance of the points I have especially alluded to, will enable us to change the mortality

records of children in these cases in a most surprising and gratifying manner.

To recapitulate in as few words as possible: allow and encourage the first stage of labor to progress calmly and slowly—resisting all attempts or inducements to excite expulsive efforts, until full dilatation and softening of tissues shall have been accomplished.

In every case where it is practicable and safe, avoid all attempts to substitute one or both feet for the breech proper: and let the second stage progress as slowly as possible as the breech passes through the inferior strait. Chloroform, not carried to surgical narcosis may even be used to alleviate unnecessary suffering. But when the trochanters of the child have been expelled from the vulva, stop all anaesthesia—call on the mother to cooperate with you in your efforts to save her child. Have an assistant if possible ready to follow down the descending fundus, and to make heroic and intelligent pressure at the right moment—crowding the head obliquely into the superior strait as the operator shall direct.

Immediately on the unfolding of the expelled lower extremities, quickly slip a hand—with the palm hugging the belly and thorax of the child—into the vagina, and reach for an elbow, and draw it down, sweeping to right or left as the case may be. Instantly reach for the opposite arm, and if it be not readily caught, change hands quickly and introduce the hand which corresponds with the hand of the fetus, and sweep it down as in the first instance. Now the chin will follow rapidly into the lower parts of the pelvis, and be extracted with very little difficulty or delay generally.

Make no traction on the limbs or body after the thighs have been delivered.

I should fail to point a very important lesson in the management of these cases, did I not call particular atten-

tion to the fact that a very considerable number of cases of death in breech deliveries, are due *not* to genuine asphyxia but, to injuries to the spinal cord &c. in rash efforts at delivery by traction below.

Operators are sometimes made aware in a horrible manner of the violence they have displayed by the sudden delivery of the body *minus the head*. I have met three such cases in consultation.

I believe that the recorded results of a uniform method which I am practicing, will speak more forcibly and eloquently of the value of the method which I desire to emphasize, than any attempt of mine to go into more minute particulars in its description.

I claim to have discovered no new and golden path (I offer no new and brilliant surgical exploit) I only plead strongly for a more deliberate recognition of nature's rights, and nature's conserving forces and processes; and ask that obstetric assistance be only applied along these lines; thus reducing infant mortality definitely, positively, and to a most gratifying minimum.

MALCOLM MCLEAN.—M. D.

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The prevention and treatment of Tuberculosis by State methods,

BY GEORGE M. KOBER, M. D. WASHINGTON, D. C.

Consumption stands first upon the list of the principal causes of death, caryng off annually intheUnited States over 100,000 victims.

Statistics of consumption include almost as a rule only those who die with lung manifestations and little is said of the children and others who perish from tubercular meningitis, peritonitis, bone and other tubercular lesions.

Tuberculosis not only leads the list of diseases in order of frequency and mortality, but the loss entailed by the long duration of the disease, renders the subject of grave importance from an economic as well as a medical point of view. Indeed it has been estimated that the loss to the commonwealth from this disease amounts annually to \$ 240,000,000.

Students of vital statistics have noted with gratification a marked decrease during the past forty years in the

so called preventable diseases, amounting in some cities to over 50 %, the good effects being especially shown in the decrease of Consumption, Typhoid fever and diarrhoeal diseases, and perhaps no two factors have contributed so much to the general result as the improvement of the air we breathe and the water we drink.

The death rate from Phthisis in New York City has fallen from 4.27 in 1881 to 2.29 in 1902, and in Washington, D. C. from 4.12 during the decade of 1876—1880 to 2.62 in 1903.

Recognizing as we do:

1. That tuberculosis is an infectious disease caused by a specific organism, transmissible to healthy individuals under certain favorable conditions.

2. Inherited and acquired predisposition plays an important role in the dissemination of the disease.

3. The germs may enter the system by the respiratory and alimentary passages, or by the skin and mucous membranes if there be an abrasion.

4. That whilst the bacillus has been transmitted through the milk, flesh and blood of animals and man the most common and effective way, is by the dried and pulverized sputum of tuberculous patients.

5. The habitations of consumptives, as well as their personal effects unless immediate disinfection has been practiced are infected houses and objects and liable to convey the disease to others.

The measures for the prevention of this disease on the part of the State should be directed towards the control of the source, and the diminution of predisposing causes.

a.) *Measure directed towards the control of the source of infection.*

1. Compulsory notification by householders to the health authorities as soon as the disease is recognized. It has been urged that the depressing effect of such information would be too great for the patient, but this will surely be counterbalanced when we inform him, that it is after all a curable disease, and that his chances for recovery are especially favorable if he does not re-infect himself, besides the control of the source is of vital importance for the protection of his own household and others.

The health authorities apart from distributing proper printed directions for the use of the family and the patient as regards the care, disinfection of Sputum, may also resort to the disinfection of the home and personal effects of the patient, especially upon vacation of the premises.

2 The enactment and enforcement of laws against promiscuous expectoration where the sputum is liable to infect others, and provisions for suitable spittons and their proper disinfection in all public places.

3. The streets should be sprinkled and swept at night so as to reduce the inhalation of germ laden dust to a minimum; This appears to be indicated by the fact, that Martin in examining the dust of one of the most frequented Streets of Leipzig, found the tubercle bacillus in about 80% of the specimens.

1. The supervision of the sanitary condition of hotels, theatres, churches, schools, ambulance service, and sleeping cars etc should likewise be under the control of the health department.

5. Marriage with a tuberculous person should not only be discouraged but absolutely prohibited by law; A tuberculous mother should not nurse her infant, and in the selection of a wet nurse a certificate of health should be demanded.

6. Government inspection of dairies and of dairy and

meat products and the extermination of bovine tuberculosis are urgently called for. The writer has tabulated 86 cases of milk-borne tuberculosis, 3 accidental inoculations of men by the topical application of cream and milk, and 12 tuberculous wound infections among Veterinarians and butchers. According to Dr. Salmon during 1900, of 4,861,166 inspected cattle in the United States, 5,279 or 1 in 921 were tuberculous, and of 23,336,884 hogs, 5,444 were sufficiently affected to cause condemnation of some part of the carcass.

The possibility that the germs of tuberculosis may be conveyed by means of flies and dust, suggests that greater precaution be exercised in the exposure of food stuffs in show windows and in the open air.

b.) *The duties of the State in diminishing the predisposing causes to Consumption.*

Having considered the sources of infection and the indications for their control, it is well to remember that in addition to the germ there must also be a suitable soil for its growth and development.

Such a soil is usually found in persons of feeble physique, victims of malnutrition, whose vitality has been lowered from any of the numerous causes which are afloat, whether it be a previous attack of sickness, dissipation, lack of pure air, sunlight or proper food.

Dampness of soil and drainage. The relations between dampness of soil and pulmonary consumption were first pointed out by Dr. Bowditch of Boston in 1865 and Dr. George Buchanan in the 9th Report of the Medical Officer of the Privy Council London 1867 furnished ample statistical proof that consumption became less frequent in certain towns after they had been sewered, and the soil consequently drained. In towns like Worthing, Rugby and Salisbury the deaths from Phthisis after the introduction of sewers were reduced by 36 to 49%.

When we remember that in 1896, 28.7% of the total population, in the United States lived in sewéred towns and 41% lived in towns having public water supplies, we see at once the necessity, that a system of public sewerage must go hand in hand with the public water supply. The neglect on the part of the State not only increases the dampness of the soil, but compels recourse to the various make-shifts for the collection and removal of excreta, and leads to pollution of the air, soil and water.

Insanitary dwellings. Tuberculosis is far more prevalent in dark, damp and insanitary houses. The only reasonable explanation for this is that the ubiquitous tubercle bacillus, which is destroyed by a few hours of exposure to sun light, finds here suitable environment for its vitality and growth; dark, gloomy and badly ventilated houses are also usually damp air abstracts an undue amount of animal heat from the inmates and in consequence produces catarrhal conditions of the respiratory passages which in turn favor the invasion of the tubercle bacillus.

For all these reasons I consider the condemnation of houses unfit for human habitation, and substitution of sanitary houses only second in importance to the destruction of the germs.

The State may not be in position to provide the sanitary homes, but it can at least insist upon regulating the construction and amount of air space, light, heating and ventilation of dwellings offered for rent.

Building regulations. In addition to suitable habitations the State should interdict the erection of tall buildings and of all buildings covering over 66% of the lot, since they shut out light and air, thus destroying the very object for which broad streets and avenues were created and bringing us back to the insanitary era of the mediæval towns with their narrow and winding streets.

Physical culture, public playgrounds and baths. The State should pay attention to the physical development of our youth, and this is best accomplished by proper training, preferably in the open air, in the public schools and playgrounds. The children of consumptives require special attention because of the transmission of vulnerable anatomical elements which render them peculiarly liable to the disease, this predisposition may certainly be overcome in addition to proper food by pure air, methodical gymnastics, systematic hardening of the skin secured by bathing, and no school should be without these hygienic advantages.

Factory sanitation. It has also been shown that a vulnerability of the tissues to the disease may be acquired by dust producing occupations and here the amount of the dust seems less important than the character of the particles which compose it. For this reason no doubt the hard, sharp and angular particles of iron and stone dust are more liable to produce lesions of the respiratory mucosa. In no other way can we explain the comparative innocuity of coal dust the particles of which are quite clear from sharp points and corners. English statistics show, that the coal miners stand at the head of the list, as regards freedom from Phthisis and other lung diseases, in dust inhaling occupations and that the tin miners of Cornwall who inhale a sharp angular and most irritant stone dust furnish the largest number of cases.

Mr. Frederick L. Hoffman in 1900, from the experience of the Prudential Insurance Company for three years, found that Consumption caused the highest percentage of deaths among stone workers, printers, glass workers, book-keepers, plumbers, salesmen, hatters, silk workers and cigar makers. Between the ages of 25 and 35 the proportion was one half among stone workers (64.5%) glass workers (58.7%). Hirt as early as 1871 showed that

men engaged in the dust—inhaling occupations suffer much more frequently from pneumonia and Phthisis, than those not exposed to dust, and that there is practically no difference in the frequency of diseases of the digestive system. The influence of the character of dust is shown by the relative frequency of these diseases per 100 workmen as follows:—

Phthisis. Pneumonia. Digestive Disorders.

Workers in metallic dust...	28.0...	17.4.....	17.8
Workers in mineral dust...	25.2...	5.9.....	16.6
Workers in vegetable dust...	13.3...	9.4.....	15.7
Workers in animal dust....	20.8...	7.7.....	20.2
Workers in mixed dust.....	22.6....	6.0.....	15.2
Workers in mon--dusty trades...	.....	11.1....4.6.....	16.0

While the quantity of dust is perhaps not an unimportant factor, the quality of dust all other chances being equal deserves special emphasis, and it is clearly the duty of the State to formulate efficient laws in regard to factory sanitation and the occupations in general which are injurious to health.

(c). *The duties of the State in the treatment of Tuberculosis.*

It is certain the duty of the State to see, that every patient who has no home or whose environments offer less favorable conditions for his recovery is provided with proper care and shelter.

It may be truly said, that the Sanatorium treatment of Consumptives offers the best chances for recovery and the ultimate extermination of the disease, and the State must shoulder the responsibility in the cure of patients unable to bear the financial burdens. Every city of any size should provide facilities for the isolation and proper open air treatment of tuberculous patients, supplemented by General State Sanatoria. Since the identification

of the disease is the first and most important step in the treatment and prevention, the establishment of Dispensaries for the recognition of incipient cases among the dependent classes seems urgently called for. Such dispensaries should become the feeders for municipal and state sanatoria and when properly conducted will be a most important factor in the combat against tuberculosis. In all such cases it is desirable to shift charity from abuse, and, it devolves upon the state to determine the financial condition of the applicant and also prevent destitution of the family while the "bread-winner" is incapacitated for work. It is also the duty of the State to suppress Quackery, for no class falls more readily a prey to unscrupulous monte-banks, than our consumptives.

The Federal Government is already performing an important duty by exercising a watchful care over the subject of tuberculosis among animals. The preventive measures urged by the Bureau of Animal Industry are of far reaching significance although primarily intended to protect the pocket book of our Farmers and Stockraisers.

In view of the great economic importance of Tuberculosis it may be a pertinent question, why the Federal Government does not contribute more to the extermination of this disease. Large sums are annually and very properly expended to quarantine our Seaports against cholera, yellow-fever and small pox because these diseases if permitted to gain a foothold, occur in epidemics, are rapidly fatal and hence strike terror into a community, and yet practically nothing is done in the study or prevention of consumption which claims more victims than all these diseases combined.

In the opinion of the writer it would be extremely interesting and important to determine for example in the Pharmacological Laboratory of the Bureau of Public Health, the effect of pure and impure alcohol upon animal tis-

sues, with special reference as predisposing factors to Tuberculosis and Pneumonia.

In the actual care and treatment we also have a right to expect a more active participation on the part of the Federal Government. It is a notorious fact, that thousands of hopeless cases of consumption are annually dumped upon our States and Territories, which have become famed as health resorts, and the hospitals, sanatoria and alms-houses of the Carolinas, California, Colorado, Arizona, and New México are filled with indigent dying consumptives.

It is claimed by Mr. Frank D. Witherbee, in Charities, Nov. 6th 1904, that in Phoenix, Arizona, Public and private charity is taxed to the uttermost and that $\frac{3}{4}$ of the money expended on the inmates of the alms-house goes to alien consumptives.

It is cruel and worse than useless to send a consumptive away from home without sufficient means to secure the ordinary comforts and advantages of climatic treatment, and the Federal Government should not tolerate it, but until this is accomplished representatives of the Public Health and Marine Hospital should visit such places as Phoenix and other health resorts in Arizona and New México for the study of the sociological conditions of the consumptives, which studies may form the basis for a more permanent and enlightened amelioration of this unfortunate class of victims.

It is very evident that the great problem which confronts most of our Sanatoria today is, what shall be done with the class of indigent patients whose disease has been arrested, but who need suitable employment and surroundings for their permanent recovery. While it is hoped that the opportunities of a co-operative system will broaden out in time in connection with State Sanatoria, it cannot be denied that New Mexico and Arizona, with their

abundance of sunshine offer special advantages for a permanent cure, and the question arises, whether the Federal Government would not be justified in engaging in extensive Live Stock Raising and employ young men of this class to do the work. The Government needs horses and mules, beef and mutton. butter and dairy products for the public services. It has many valuable Reservations susceptible of cultivation with or without reclamation, and there is no good reason why such Government Farms should not prove self-supporting and a very important factor in the extermination of the disease.

The results of the Government Sanatoria for Consumptives at Fort Bayard, and Fort Staunton, N. M. have been so gratifying, that substantial and permanent results may be hoped for from an expansion of the system, along the lines indicated or by the establishment of colonies for consumptives under the fostering care of the Federal Government.

In conclusion I heartily endorse Dr. Knopf's recommendation that the United States Government should, after the example of Great Britain, France and Germany appoint a special commission "composed of expert sanitarians, physicians and veterinarians who should unite with the State and Municipal sanitary authorities of the country in the combat of tuberculosis in all its forms among man and beast."

Such a commission need not entail any great expense as the Government is already well supplied with experts in the various Public Services, and all that seems necessary is to grant legislative authority to bring about the desired result.

DISTURBANCES

OF METABOLISM AND WHAT IT MEANS TO THE BREAST FED
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Disturbances of metabolism, are seen by noting the character of quality of the stool. Digestion if perfect yields a soft homogenous mass of yellowish color. When metabolism is not properly performed there will be a dry hard scybalous mass. In other cases with disturbances such as intestinal indigestion the stool will be filled with air bubbles due to fermentative processes chiefly found in the colon.

Other evidences of intestinal indigestion can be seen in the form of white cheesy curds in the stool. When such masses are passed it is very evident that the constitution is being robbed of bone forming and muscle building elements. We are not surprised therefore to find that when such conditions are allowed to continue, that soft bones and flabby muscles yield a defective organism in which

backward teething, or decayed teeth complete the picture which we call rickets.

One of the earliest symptoms of rickets is restlessness at night, which if continued is indicative of gastroenteric disturbance.

Headsweating which is seen during nursing is another symptom that requires careful consideration.

Rolling of the head on the pillow will in time produce baldness of the occiput, which is another early symptom of rickets. I have seen baldness of the occiput as early as the third month. In some cases an infant may be nine months old before this symptom is seen.

WEIGHT. An important guide to the development of an infant is its weight. I insist on weighing every child once a week. This will be an important guide as to the real progress made in the assimilation of the food. When the weight remains stationary than some disturbance exists.

CHEMICAL ANALYSIS OF BREAST-MILK. When a breast fed infant shows no gain in weight or any other symptom above enumerated, the wisest plan is to submit a liberal sample of the breast milk of the mother to a chemist for examination. In this manner we can determine which ingredient is at fault. This has an important bearing on the diet which is required for the mother during the nursing period. When menstruation appears regularly during the nursing period, it is wise to make a chemical examination of the milk at more frequent intervals, for frequently the appearance of menstruation is a forerunner of the cessation of the lacteal supply.

RHACHITIS. When this condition is met with we ask ourselves, could this disorder have been prevented? To this we answer; that under certain conditions rickets could have been prevented.

Breast-feeding and Rickets. It must not be assumed that because an infant is fed from the human breast that all must go well.

DISTURBANCES OF LACTATION. A very nervous mother will usually overfeed in her anxiety to strengthen her infant.

If the baby cries and the mother is young and inexperienced she will try to quiet the baby by nursing it, and nursing it whenever it cries. In this manner the interval of feeding is not taken into account and overfeeding results,

Lack of Exercise. A nervous mother usually stays indoors owing to her anxiety regarding the baby and thus deprives herself of much needed exercise.

Lack of Appetite. By lack of exercise she will not only lose her appetite but secrete milk that is sadly deficient in fat and frequently deficient also in proteids.

Lack of Sleep. A nervous mother usually robs herself of much needed rest and sleeps but very little.

Besides being frequently disturbed to nurse her infant, she will lose hours of sleep in supervising the infant's comfort. This sacrifice results in a deficient quantity as well as in a deficient quality of milk. The result is usually told by a deficiency in the weight and development of the child ending in rickets.

Early Symptoms of Rickets. One of the earliest symptoms of rickets in infancy is constipation. This point is important enough to emphasize. The correction of the same in nine cases out of ten consists in giving a drug such as calomel or cascara for its laxative effect. While such correctives may be useful to cleanse the intestinal from stagnant faeces they do not modify the cause of the constipation.

The treatment consists in removing the cause and in most cases this will be found possible by changing the component parts of the food until proper metabolism is established.

Can the ingredients in human milk be changed? They certainly can. If the proteids are too high we can insist on active exercise such as walking, or if the mother remains indoors on account of inclement weather then exercise with light pulley weights will reduce the proteids.

If the proteids are too low the deficiency can be made up by leading a quiet life and then active exercise must be forbidden.

To reduce the fat we must decrease the amount of meat, and insist on a plain but nutritious diet.

An interesting case of marked gastric disturbance in an infant was reported to me by Prof. Lafayette Mendel of Yale University. An infant whose father was a physician showed marked symptoms of gastric disturbance. A sample of breast milk was obtained and sent to Prof. Mendel for a complete analysis. The milk contained 5.4 per cent, of fat. The young mother—a 'well fed' individual, indulged as young mothers are likely to be—was immediately put on a *low diet* with as much exercise as seemed proper. The child improved.

With an intelligent mother or a common sense wet nurse it is no difficult to change the ingredients of human milk. When there is a marked deficiency in the total quantity I usually insist on the mother drinking soup, broth, cocoa or gruel before each nursing. This usually stimulates the flow of milk.

To avoid disturbances of metabolism which will influence the quality of the milk of a nursing mother, we must insist in the beginning of the nursing period, in laying down positive rules. Such rules as pertain to the length of

time that the infant should be nursed, the interval between each nursing, and the necessity of observing the character of the stool of the infant, and its general appearance. Its sleep, its weight must all show natural tendencies.

The health of the mother is of prime importance. The physician must direct attention to the necessity of the mother observing strict dietetic rules. The mother must conform to the laws of nature and have sufficient exercise and sleep.

Her bowels require attention. If a woman is constipated, she requires a mild aperient. Water must be taken by a nursing mother frequently.

Regarding Alcohol. My rule has been to permit beer or wine if the same has been a former habit. On the other hand I persuade the nursing mother not to use alcoholic beverages be they wine beer or stout, but prefer to build scanty milk by means of the cereals, and the dairy products.

In rare cases the breast milk of the mother will be found to disagree with the infant. In such cases it will require changing to a wet nurse or to artificial feeding.

CONTRIBUCION

AL ESTUDIO DE LOS MEDIOS DE INTERVENCIÓN EN LOS CASOS DE PLACENTA PREVIA TOTAL

En ningún caso de parto anormal, está más en peligro la vida de dos seres, como en el de *placenta previa total*, y en ningún otro, tampoco, dependen más, estas dos existencias, de una intervención oportuna y rápida. “Debe pues el partero, estudiar minuciosamente cada caso particular, á fin de aplicarle el mejor medio de intervención que se adapte á sus circunstancias especiales, guardándose bien de una precipitación imprudente ó de una irresolución culpable.” (Naegele & Grenser).

MEDIOS DE INTERVENCIÓN

El profesor Pinard, nuestro eminente maestro, ha dejado magistralmente establecido el modo de intervenir en los casos de insercion de la placenta en el segmento inferior (ruptura de las membranas): pero, en los casos, afortunadamente raros, de verdadera placenta previa, es decir, cuando la placenta y el segmento inferior, se corresponden *centro por centro*, lo que Demelen ha llamado *placenta previa*

total ó completa; el método de Pinard resulta impracticable, aun cuando el cuello esté bastante dilatado. El dedo, en efecto, no alcanza el borde de la placenta, máxime si es voluminosa, sino que tropieza con los cotiledones, por más esfuerzos que se hagan, y estos desprendimientos parciales, que necesariamente se multiplican, buscando un punto vulnerable predisponen á la infección, aumentan la hemorragia y por consiguiente el peligro.

Mayores riesgos presenta aún (por la hemorragia que produce) el procedimiento consistente en desprender una parte de la placenta y extraer el feto, según la presentación, por la versión, por el forceps, el basiotribo, &c. Cada una de estas operaciones, por hábil que sea el operador, requiere un tiempo largo, durante el cual, no solamente sigue la hemorragia, sino que se aumenta, por las mismas maniobras operatorias que necesariamente actúan de continuo sobre el desprendimiento placentario.

¿Cómo intervenir pues, en un caso de *placenta previa total*, cuando el cuello esté suficientemente dilatado ó dilatatable ?

OBSERVACION

El 30 de Septiembre de 1899 fuimos llamados, por nuestro estimado colega el Dr. Coiscou, para ver á la señora Emma M. de 28 años, quien había llegado al término de su segundo embarazo, y cuyo estado era alarmante. El primero había sido completamente normal y terminó el 9 de Noviembre de 1897 por un parto dilatado, en el cual no hubo asistencia médica y apareció la criatura.

En el curso del actual embarazo, ningún accidente se había presentado hasta los seis meses y medio; pero de esta fecha en adelante, ocurrieron frecuentes hemorragias que obligaron á la paciente á guardar cama, durante los dos últimos meses y que fueron tratadas por irrigaciones de agua caliente y taponamientos.

En la mañana del día anterior á nuestra visita, habían principiado los dolores, y junto con ellos se presentó una gran hemorragia que pudo cohibirse, momentáneamente, con un fuerte taponamiento; pero que reaparecía á medida que aumentaban las contracciones. El Dr. Coiscou había comprobado la inserción de la placenta en el segmento inferior é intentando, varias veces romper las membranas; el dedo no alcanzaba el borde de la placenta, y cada nueva tentativa, produciendo mayor desprendimiento, aumentaba el derrame.

En el examen local que practicamos junto con nuestro distinguido colega y amigo el Dr. Gautier, llamado también en consulta, encontramos una dilatación de seis centímetros más ó menos, ocupada completamente por los cotiledones; pero en las respectivas tentativas que hicieramos entonces, de romper las membranas, no fuimos más afortunados que lo había sido, la víspera, nuestro compañero Coiscou.

Entre tanto, la paciente desfallecía, el pulso pequeño y frecuente, llegó á veces, á ser filiforme, la vista se nublaba y el rostro se cubría de sudores fríos. Los movimientos activos y los ruidos del corazón del feto habían desaparecido desde esa misma mañana.

Presenciamos un caso de *placenta previa total*, en que se trataba de salvar á la madre, cuya vida estaba ya muy comprometida. Ante situación tan angustiosa, recordamos que algunos parteros han señalado casos semejantes, terminados por expulsión espontánea de la placenta antes del feto, salvándose la madre: y aunque penetrados de que el medio de intervención que nos sugería aquel recuerdo, había tedido sus opositores, nos pareció sin embargo, el único que podía, en aquel caso especial, brindar á la pobre señora una esperanza de salvación.

Propusimos resueltamente, á nuestros compañeros, el desprendimiento total y extracción de la placenta, antes del feto.

Lo llevamos á cabo rápidamente, y si bien el derrame excedió un poco, al que generalmente se observa cuando la inserción se hace en el segmento superior, pronto y completamente. La presentación era de vértices, hicimos una aplicación de forceps, y en las primeras tracciones se produjo la procidencia de un brazo; desarticulado y sacado el instrumento, redujimos la procidencia y después de una nueva aplicación, se extrajo la criatura, sin que durante todo ese tiempo, hubiera la más leve pérdida de sangre. Mientras duró la intervención se aplicaron inyecciones de cafeína, de ether y de suero artificial (agua salada al siete mil % (7.000 %)).

A los veinte días, nuestra operada dejaba la cama, sin haber tenido durante ese tiempo el menor accidente; la hemos vuelto á ver en diferentes ocasiones; tiene tres niños, sus partos han sido todos, completamente normales y en la actualidad está en cinta de ocho meses.

CONCLUSIONES

El detenido estudio de la anterior observación, nos induce á creer, que en el caso de *placenta previa total*, en que se trate de salvar á la madre; el mejor medio de intervención, cuando la dilatación sea suficiente, es el desprendimiento total y extracción de la placenta, antes del feto; cualquiera que sea la presentación.

No dudamos que este procedimiento, llevado á cabo oportunamente, por manos hábiles y experimentadas, contribuya á salvar también la vida del feto, sobre todo en las diferentes variedades de la presentación de pelvis.

Santo Domingo, 14 de Diciembre de 1904.

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A STUDY

OF STOMACH DILATATION TREATED WITHOUT OPERATION
AND RESULTS IN 60 CASES. BY JAMES G. HUMFORD, M. D.
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I propose to tell of 60 cases of gastrictasis treated in the Medical Wards of the Massachusetts General Hospital in the years 1888 to 1903, and of the end results which it has been possible to obtain. In the list those cases are not included in which definite diagnoses of organic disease were made.

The cases here described were chronic dyspeptics who had suffered anywhere from a year to a life-time and were admitted to the hospital wards for treatment. They are listed in the hospital under "Dilatation of the Stomach" because no more accurate diagnosis was made. Why in the light of subsequent investigations some of these cases were not more carefully analysed it is hard to see.

There are recognized by clinicians a male and a female type of dilatation; the male type is more likely to be a great lateral dilatation, discovered by tympany above the

umbilicus, extending beneath the ribs upon the left and pushing up the diaphragm. This type is frequently seen among alcoholics in dispensary practice, and is usually successfully treated in outpatient departments. It is not to this alcoholic type that I refer: indeed, of the 41 male cases to be described 6 only could in any sense be called alcoholics.

The female type of dilatation is the long stomach distended towards the pubes, usually associated with gastroptosis, though a prolapsed stomach is not necessarily always dilated. We used to regard very many of these cases as atonic and doubtless many of them are so; but, in the experience of the Massachusetts General Hospital, the majority of atonic cases, if curable or susceptible of relief, find their benefit in the Out-Patient Department and are not met with in the Hospital wards.

There were listed in the index catalogue of the Hospital, in those 15 years, 117 cases of "Dilatation Stomach." Sixty of those cases have been traced;—a little more than 50%; of the 57 untraced cases it is probable that many are dead. Certainly dead men are less easily discovered than the living.

A passing word about those 57 lost cases. We have a record of their condition when they left the Hospital: I was "well"; 16 were "much improved", 27 were "improved"; 8 were "slightly improved"; 5 were "not improved."

Of these 57 cases, 42 were males and 15 were females. The average age of the males was 46.5 years; the average age of the women 42.6 years; not that there is any special interest or significance in these figures, except that they will be found to correspond later with those of the patients who have been traced. The records show that when those traced cases left the hospital there were 2 well; 2 unimproved and 47 improved; nine died in the hospital. At the time of my investigation the report is as follows:

In 60 cases traced: well 7; unimproved 19; improved 5; dead 29.

This is not an encouraging showing; let us consider however, some of the facts and figures in detail and learn what we may of this interesting but unclassified group.

In the first place it is striking that of the 60 cases, 41 were *male* and 19 were *female*; while at the same time the Hospital records show that during that period of 15 years the total female entries of all classes of cases somewhat exceeded the male entries. The explanation for the reversal of figures in the cases under consideration probably lies in the fact that the majority of women with stomach disease who entered the Hospital were found to have clear histories of gastric ulcer and were listed under that heading.

The *ages* of the men varied greatly; the youngest was 27, the eldest was 64 and the average age was 47 years. The youngest woman who entered was 22 years, the eldest was 69, and average being 40.3. These figures correspond closely to those usually given and when we come to study diagnosis it will appear that cancer, when the patients were admitted, was less commonly seen among the women than among the men.

The *duration of symptoms* in both sexes varied all the way from 12 months to 40 years.

As one would expect, the *loss of weight* varied greatly, though the records do not always state the exact figures. The variation however, runs from zero up to loss of 100 pounds, and seems to be of no special value in throwing light on a more refined diagnosis.

Pain was an almost constant symptom in these 60 cases: 5 only of the patients were without it. It is variously described as coming on immediately after eating, several hours after eating, relieved by eating to return later

and sometimes as being constantly present. As one would expect, when there was pyloric obstruction, *late* pain was much the most common. It is described as a burning, gnawing, throbbing, dull and boring pain: and many persons are found in the class who complain of constant pain. In all the cases it appears that the pain was relieved by vomiting.

Vomiting was present in 57 of the 60 cases. Two of the cases complained of vomiting in the absence of pain, but in no case were both pain and vomiting absent. The vomitus varied of course, in amount; and one reads of belchings, spittings up, vomiting the last meal taken, or vomiting enormous amounts typical of cases of great dilatation.

Fifteen, or a quarter of the sixty cases, gave a history which might suggest that there had been at sometime a distinct *haemorrhage* from the stomach; only three however, gave a clear history of frequent vomiting of blood. One case also passed stools suggestive of gastric or duodenal ulcer. A consideration of this one symptom of haemorrhage alone shows that a considerable number of these cases of gastric dilatation would undoubtedly today be further analysed and put into the group of cases in which the dilatation was due either to ulcer or malignant disease.

The *analyses* of gastric contents as given in the records are not satisfactory. Indeed, one would scarcely expect satisfactory accounts, from our present point of view, in cases running back 10 or 15 years. As we come down towards the present date however, the analyses are found more accurate, but apparently no more final for the establishment of diagnosis. This criticism of the records is equally true of all manner of cases recorded in former years, and the very fact that in all departments of clinical research our present observations are better than those former ones, indicates merely the gratifying fact that we

know more than we used to know. The sings “splashing” and “visible peristalsis” are seldom recorded in the early records, although they must have existed, Their significance was apparently disregarded or over looked.

The *treatment* of all these cases need not be entered into at length; it was what the physical examination and analyses obviously suggested. The patients were put to bed and lavage was very commonly employed, being used in 44 out of the 60 cases. Most of the individuals were given such tonics as Nux Vomica, Capsicum, light wines, strychnine and iron. In suitable cases a full diet was employed, in others a dry nitrogenous diet and in others still a liquid diet. It is interesting to note that all the 60 cases 5 only were given HCL regularly and 2 only were fed upon nutrient enemata.

In all these cases cathartics were employed, such as carlsbad salts, aloes, strychnine, belladonna, cascara.

Such in very brief out-line is a summary of my notes upon the 60 cases as a whole. Let us now consider in more detail those cases which died or recovered, and see if in any way such facts as we have are significant.

Seven cases recovered and after several years report themselves as well; 2 of them are woman, 5 are men. The first and most striking fact about all these is that the recoveries took place in persons in middle life who had been many years dyspeptics, their periods of invalidism running from 5 to 40 years individually, an important fact for the consideration of those enthusiasts who are urging indiscriminate and immediate operations on all cases of chronic dyspepsia.

The *Dead*: Of the 60 cases, 29 (48.3%) are reported dead and the causes of this large number of deaths are the subject of most serious importance in this inquiry. We are constantly being told, and with great show of rea-

son, that the greatest danger of long continued stomach disease, after early life, is cancer; the probability of malignant disease developing on the site of ulcer. After much careful inquiry it appears that in 15 or over 50 per cent of these 29 deaths cancer was assigned as the cause of death. Our figures are suggestive either way but prove nothing either way. Of the 15 deaths from cancer, 6 followed a history of many years invalidism. These *six* patients had had stomach symptoms for 5, 7, 9, 10, 12, 20, and "many" years; they sought relief at the Hospital as a last resort and most of them died a few months after their entrance. The probability, of course, is that the above stated contention is sound and that in these cases cancer had been implanted upon long standing non-malignant disease.

In the remaining 9 cases of death from cancer, the disease ran a short course from the initial symptoms, to the end: the average duration being 17 months. The shortest case is recorded as 4 monts in all, and the longest as 39 months. These figures dealing with the duration of cancer correspond fairly well with those of Von Mikulicz, Moynihan and other writers.

The causes of death in the remaining 14 persons, of whom cancer is not reported, are starvation; although for a certain proportion one suspects cancer, the presence of which was not disproved from lack of autopsy.

For the cancer cases one final note is interesting; namely, that with 2 exceptions all died within 9 monts after leaving the Hospital, no matter what the duration of the disease may have been before entrance. The 2 exceptions must have developed their cancers after they left the Hospital. for their deaths are recorded in 3 years and 5 years subsequent to the date of Hospital discharge.

Of the 14 cases against whom the diagnosis of cancer cannot be written, 11 died within a year after leaving the Hospital. Lack of proper returns and autopsy records

leave us without definite conclusions in these cases, but we must assume that with many of them cancer was the cause of death. Eleven of these cases were of short duration after their discharge and had been ill previously for periods varying from four months to twenty three years.

Three of the non-malignant cases lived six, five and six years after their discharge, and died eventually of "stomach trouble."

To put our facts in other words: of the *twenty-nine* fatal cases, twenty were short cases, ill but a few months before entering the Hospital and dead a few months after leaving. Nine were *long* cases; and of the *long* cases four died of cancer soon after coming under observation; two died of cancer several years after being studied at the Hospital; and three died of wasting gastric disease other than cancer. (?)

The figures may be juggled in many another interesting fashion, but nothing is proved beyond the first obvious fact, that nearly 50 percent of these cases of gastrectasis died, and that about half the deaths were due to cancer. These cases speak eloquently as to the difficulties to be encountered even in hospital work of making a full and accurate diagnosis.

Nineteen of our cases have been found worse or *unimproved* since leaving the Hospital, and many of them are so seriously ill that we must expect them shortly to be ranked with the dead; 11 of them are men and 9 of them are women. Their ages are unimportant but we must note that they averaged at entrance 43 years; the youngest being a man of 28, the eldest a man of 64. And the duration of their invalidism varies all the way from 1 year to 28 years, the average being 10.7 years. Most of them however, give histories of long continued dyspepsia, either before entering or since leaving the Hospital, so that it is fair to state that in a very few, if any, of these cases are we at present

dealing with malignant disease. The essential symptoms have been epigastric pain after eating, which is present in all of the 19, and occasional vomiting, which is present *in 17 of the 19*.

The symptom of ancient haemorrhage has been present in but 6 of the cases and such haemorrhages were so long ago recorded that a positive diagnosis of gastric ulcer cannot very well be made. The presence or absence of HCL in these cases is interesting. It was present in 16 of the cases and persistently absent in 3; yet those 3 cases obviously had no cancer, for they have continued living on feebly for 9 and 10 years since leaving the Hospital, indeed one of them has been an invalid 15 years, the second 33 years, and the third 34 years. In all of the 19 unimproved cases there was greatly delayed motility with a gastric capacity considerably increased. They have gone on living many years since leaving the Hospital, but all are hopeless invalids, dependant on others for their support. It is a depressing series of biographies.

Five cases of our 60 are reported as "*Improved*". Though not to be placed in the class "*well*" they approximate that class, and may be considered in the same connection. Two were females and 3 were males and their ages vary widely; the youngest being a woman of 22, the eldest being a woman of 54, at entrance:

Taking these five cases in some detail we note that.

Case 1. Was 54 years old at her entrance, 15 years ago, and is now fairly comfortable at the age of 69. She had been ill 21 years when first seen at the Hospital, so that now, in her old age, she has been a dyspeptic for 36 years. Her symptoms have been occasional epigastric pain after eating, and occasional vomiting. It is recorded that some 20 years ago she vomited blood twice, and the presumption is that she has a slight pyloric obstruction due to a healed ulcer. At the Hospital the stomach contents

contained free HCL, She was treated by, lavage, cathartics, tonics and nutrient enemata, and be it noted that this case and the next are the only ones in our list of 60 of whom it is recorded that they were treated by neutrient enemata. This patient continues the use of the stomach-tube at home and enjoys a fairly comfortable existence. A good example of what may be expected in moderate stenosis of the pylorus under fairly favorable circumstances.

Case 2. Was a man 39 years old who had been acutely dyspeptic for one year. He too had had and has epigastric pain, occasional vomiting and has a record of one haemorrhage about nine years ago, before entrance, and he too doubtless has a slight pyloric obstruction due to a healed ulcer. No free HCL was found present; there was abdominal splashing and he was treated by lavage, was given HCL and fed by nutrient enamata. He reports himself as fairly comfortable.

Case 3. Was a young woman of 22 who had been a dyspeptic for 18 months, with epigastric pain several hours after eating and occasional attacks of vomiting. At one time, shortly before entrance, she vomited blood; HCL was present; she was treated by lavage, was discharged after 2 weeks and reports herself as fairly comfortable so long as she uses the stomach tube.

Case 4. Was a man of 39 who had had symptoms for 12 years. Now, 14 years since his discharge, he looks back on 26 years of dyspepsia. He is thin, 20 pounds below his normal, with occasional attacks of pain and vomiting; HCL was present in his case; he was treated and continues to treat himself by lavage.

Case 5, a man of 52 at entrance, had symptoms of comparatively short duration, 3 years before entrance and 2 years since. He has lost 30 pounds in weight and has the usual symptoms of occasional vomiting; HCL was present

in his case and he continues fairly comfortable with the use of lavage.

All of the above 5 cases had dilatation of moderate extent with a gastric capacity ranging from 40 to 80 ounces, and delayed motility; indeed, except for the disparity in age they seem quite similar.

The apparent lesson to be drawn from this little group this is, that patients with mild degrees of dyspepsia in whom there are healed ulcers with some pyloric obstruction, may be kept fairly comfortable by the continued use of lavage, which prevents accumulations, and consequent fermentation, but cannot be made completely well while the obstruction, mechanical or functional with its consequent dilatation and malnutrition, persists. We must not forget moreover that such an existence to many persons is preferable to the thought of undergoing an operation.

The *Well*: As with the class of "improved," the "well" occupy but a small space in our list. Seven persons of 60 report themselves well. When we come to study the figures we find little that is significant. The ages of the patients on entrance varied from 29 to 57; five of them were men, two were women; and while the two women had been ill twenty and fifteen years, respectively, the men had been ill for 6 months to 40 years; in no case was there a striking loss of weight, except in that of a man of 42 who had lost 40 pounds. In brief detail the records are as follows:

Case 1. Was a man of 57, who had been ill 40 years and had lost 5 pounds; he was a carpenter and there was some suspicion of lead colic about him; during this long period he had had frequent attacks of gnawing epigastric pain relieved by food; some times vomiting would relieve the pain, and he had vomited as much as 2 quarts at a time; he was constipated and flatulent, he was thin and neurotic. The lower border of his stomach was 4 inches below the

umbilicus, there was a residue of 8 ounces, thin undigested food, not foul; there was abundance of free HCL and no lactic acid. The man was put on a dry nitrogenous diet with bicarbonate of soda, iron, and gentian; after 6 weeks he was discharged well.

For the past 9 years he has remained well. This may be a case that illustrated how surgeons most not fail to diagnosticate the gastric crises of lead colic.

Case 2. Was that of a man very different from the last; he was 35 years old and had had symptoms for 3 years only. At the Hospital they thought he might have cancer, but that was 11 years ago and he is still living. For three years he had had debility, poor appetite and epigastric pain coming on half an hour after food. He was an emaciated man and there was abdominal splashing. At the Hospital they fed him up and gave him HCL. His stomach was dilated to the umbilicus. In 2 weeks he went home well. He has been well ever since.

Case 3. Was a good deal more serious; it was that of a man 42 years old, whose stomach reached 3 inches below the umbilicus with a capacity of 60 oz.; HCL was present and no lactic acid. For many years he had had occasional vomiting of about 50 ounces at a time. He had lost 40 pounds. At the Hospital they washed him out and fed him up, and at the end of 2 weeks he went home, taking with him a stomach tube, since unused. That was 6 years ago and he has been well ever since.

Case 4. Was that of an emaciated middle aged man who had been vomiting occasionally for 10 years, and usually at mid-night; he used quite frequently to have pain after food, there was some ptosis of the stomach and the dilatation extended 4 inches below the umbilicus. A residium of 5 oz. was expressed and much free HCL was present, as well as Butyric and Lactic Acids.

It is evident, from the tone of the record, that this was regarded as a rather ulgy case; but they gave him Carlsbad salts: washed his stomach out, sent him home with a tube and he has been well ever since. That was four years ago.

Case 5. Also looked unpromising; it was that of a man 44 years old, who had epigastric burning, and dull aching two or three hours after food for many years. He had lost 12 pounds. The pain was evidently relieved by food, but came on again later, and often he used to vomit up a pint or more. He too, had ptosis of the stomach and splashing, with the greater curvature 2 inches below the umbilicus. His gastric capacity was 53 ounces and free HCL was present.

They gave him a milk diet, salts, bismuth and bicarbonate of soda, with daily lavage. He went home well and is well to day after 4 years.

Case 6. Was that of a young woman 29 years old, who had been a dyspeptic for 20 years, and had vomited mucus and food at varying intervals during that period. There had never been any significant pain, but she was emaciated, with a stomach 4 inches below the umbilicus; without HCL and with lactic acid present.

She was put on a full diet, after 3 days of which HCL was found. After 3 days of such treatment, and with lavage, she left the Hospital with a stomach tube and sightly relieved.

Here's a quotation from her letter written 12 years after leaving the Hospital. It is instructive and somewhat entertaining:—"All of the symtoms returned after leaving the Hospital and for three or four years I was very ill indeed and finally was persuaded to go to Dr. F—; after treating me for about 10 months he succeeded in curing me almost steadily since (*sic*, for 8 years!).

“Dr. F—does not believe in washing the stomach. I am sure that the thing which did me the most good was teaching me how to live. I can now eat almost anything and, unless I am indiscrete, rarely have return of the old trouble.”

Case 7. Was that of a widow of 38, with a history of 15 years dyspepsia. The record notes the fact that she was a neurasthenic with a slightly dilated stomach. During these 15 years she had had occasional attacks of vomiting, but no haematemesis; she was constipated, thin and excitable; she spent 3 weeks in the Hospital being fed up, and being given tonics. Then she was discharged “relieved.” A month later she reentered the Hospital to stay there 2 months under the same treatment, and was then discharged well. She had no gastric lavage.

Eleven years have elapsed and she reports herself in excellent health.

Of these 7 persons who have recovered and have remained well there is nothing especially to distinguish them from the persons who died or the persons who continue dyspeptics. All appeared unfavorable cases for treatment, none of the 7 had haemorrhages, 6 had vomiting; and in every case there was either vomiting or pain or both; each one had a dilated stomach. They are shining examples of what may be done “medically” with the most unpromising cases.

In this “well” class again the investigation of gastric contents determined nothing except that delayed motility was shown; 4 cases had HCL, 3 of them had it not; 2 of the cases showed lactic acid and 5 of them showed none; 4 of the cases, those with most considerable dilatation, were treated by lavage; 3 of them, those with slight dilatation and of the neurasthenic type, were not so treated. All of the cases were in middle age or just about entering upon

that period of life; and all of them are still living, well advanced in middle age or old age.

Just what may be the cause of dilatation in these "well" cases is not apparent, but certain it is that they have been fortunate enough to pass through long periods of gastric disease without developing cancer and that they are now well:—these 7 out of 60.

In resumé I may say, as I have already stated, that I have been considering a series of cases in which the diagnosis has been made of a prominent symptom which has several important etiological causes. For one reason or other best known to the clinicians under whose eyes these cases came during the past fifteen years, no definite attempt was made to separate these cases into their etiological groups for diagnostic purposes. This is not surprising when we remember the general disfavor with which dyspeptics have been treated in years past—they have received scant attention in too many instances. In the light of our present enthusiasm for stomach work it seems more than probable that this diagnosis—gastrectasis—would not be the only one made today in many of my cases. The series shows distinctly that a goodly number would be considered as of mechanical obstruction probably of benign origin. The difficulties in the way of diagnosis are illustrated by the resulting cures in some of the most unfavorable cases, and in the rapidly following deaths in others presenting the mildest symptoms, as well as symptoms of the shortest duration. It must, however, be held firmly in mind that while many of our present diagnostic procedures have been known for years past, their complete application in a practical logical manner, has been a matter of only a few years standing. The surgeon who is given to criticising medical diagnosis and treatment should remember also that he must be as lenient in his judgement of the past medical diagnosis and treatment as he desires internists

to be when he ask them to blot out from their remembrance the statistics of all gastric surgery done before the year 1904. Certainly a number of the above cases of dilatation would apparently have been benefited by an operation for the relief of the mechanical obstructions which evidently gave rise to the symptoms, and the point is to be insisted upon that after all possible attempts have been made to reach a clear understanding of the causes of gastricstasis, and after the adoption of suitable therapeutic measures without beneficial results, then operative measures are to be considered and a surgical consultation called.

ETHYL CHLORIDE

IN THE TREATMENT OF HERPES ZOSTER BY HOWARD MORROW D. M. SAN FRANCISCO.

For the many skin affections for which we are unable to give much relief, zoster occasionally is an excellent example.

Ordinarily it is a very mild condition for which the physician can make the patient quite comfortable, but frequently zoster produces more discomfort and pain than can be tolerated by the patient. The pain necessitating blistering, morphine injections, etc. In the milder cases the vesicles should be protected from the friction of the clothing by covering them with dusting powder, such as starch and oxide of zinc, to which camphor or morphine may be added. Although ointments tend to produce rupture of the vesicles, a condition not to be desired, nevertheless oily applications such as zinc oxide one part to three parts of carron oil, give a great deal of relief, particularly during the crusting stage. Menthol may be added to this when necessary. Internal remedies given with a view of aborting the eruption are of doubtful

value. In the severer cases antipyrin in large doses and given regularly occasionally gives some relief. Mild galvanic currents give most benefit for the neuralgia that so frequently follows the eruption. For the agonizing pain which often accompanies the eruption subcutaneous injections of morphine given over the nerve act well but possess many disadvantages. Counter irritation has long been used to overcome the severe pains of zoster, and as an example ethyl chloride acts excellently. Probably the action is more than a counter irritant but as to that I am not prepared to state.

Patients who have not slept for days and are in constant pain, can be greatly relieved by this treatment. An area the size of a dollar is frozen at a point where the nerve emerges from the spinal column. Although this usually relieves the pain along the entire nerve, it is better to freeze areas where the pain is localized. In some cases this treatment will relieve the pain for a day or more, whereas in others, only for a few hours. When this is the case there seems to be no objection to applying the ethyl chloride frequently.

I will report briefly on the following cases:

J. P. aged 60 years, had zoster of the third and fourth spinal areas, one group of vesicles was located anteriorly and another posteriorly, and the eruption was of three days duration. There was constant pain and insomnia from the beginning of the eruption, and the pain was localized to the two areas of vesicles. An area of skin between the posterior group of vesicles and the spinal column was frozen. That night the patient slept well, and this treatment greatly diminished the pain in the back, but only slightly decreased the pain in the anterior area. The following day both areas were frozen which relieved the pain and allowed the patient to continue with his work for the first time since the eruption appeared.

In November, 1903, a physician consulted me for pain accompanying intercostal zoster, ' The eruption was of 10 days duration. The patient had been unable to sleep during this time, and was unable to attend to his work. He had taken large doses of antipyrin and locally had used menthol cocaine and lead and opium without benefit. Ethyl Chloride was used to freeze an area the size of a dollar over the seventh nerve near the spine posterior to a large group of vesicles, where the pain was most severe. To the right of the sternum was another group also painful, and this area was also frozen. That night the patient slept well, and the following day he attended to his work with comparative comfort. With a recurrence of the pain these areas were again frozen. The patient carried a tube of ethyl chloride in his pocket for a week, and when the neuralgic pains recurred he immediately froze the painful areas. For several days he used this method, as often as four times in the twenty-four hours.

Under this treatment the doctor slept well and attended to this work regularly.

Paranoia as it relates to Homicide

READ AT THE PAN AMERICAN MEDICAL CONGRESS AT PANAMA JANUARY 1905. BY DR. JAMES W. PUTNAN BY PROFESSOR OF NERVOUS DISEASES UNIVERSITY OF BUFFALO

There is no form of insanity which is of greater importance in criminal jurisprudence than paranoia. This statement is made because the paranoiac remains so often undiagnosed until some act of violence which results in the serious injury or death of this victim calls the attention of medical men to his case.

The examination of such criminals requires not only a pains taking study of the prisoner's history as it relates to his victim. but must include enquiry into his heredity, his youth, and, indeed, his whole life up to the time of the examination. The diagnosis of other types of insanity is comparatively easy. The recognition of paranoia is frequently extremely difficult; and oftentimes the demonstration of it, to the satisfaction of public judge and jury, is impossible, even in well marked cases.

Lest I should be accused of exaggeration I must call to your minds the case of Prendergast, the assassin of

Carter H. Harrison, the Mayor of Chicago, as recorded by A. M. Pannister.

“Prendergast was born in Ireland, and came to this country as a babe; his father was an inebriate, and several of this parental ancestors were insane. His mother was a strong woman, with no bad heredity that was ascertained.

In early childhood he sustained a head injury by falling that made him unconscious for several hours. This was followed by more or less headache. As a boy he showed peculiarities-, was very irritable, and did not care for the companionship of other boys. He went to school for a few years, and made a very good progress. He became a newsboy and did quite as well as such boys generally do, but was rarely on good terms with the other boys. As he grew older he delivered daily papers on a some what secluded route, and did this work to the satisfaction of all. About the age of fifteen he began to develop delusions of persecution; thought the other newsboys were combined against him, that they were making misrepresentations about him, and that his mother and brother were also against him and constantly trying to do him harm. A little later than this there was much agitation in the Chicago papers about the dangers of railroad grade-crossings and the necessity of stopping the loss of life by track elevation. Then he became possessed of the delusion that he was God's appointed agent to bring about this important work. To do it, he conceived the idea that he must be made the Corporation Counsel of Chicago. As soon as Mayor Harrison was elected he applied to him. After Hon. A. Krauss had been appointed he called upon him and several times demanded the office as his, by right as the Almighty's agent. At the time of the assassination he went in the early evening to the Mayor's residence and made the

same demand. Being refused, he shot him, and immediately thereafter went to the police station and gave himself up. At this station he was regarded as insane and they at first determined to send him to the Detention Hospital for the Insane. At the police station Prendergast insisted that he did it; that he was the divinely appointed agent to elevate the railroad tracks, and in order to do it properly he must be Corporation Counsel. The Mayor refused to do it, and the Lord had commanded him to remove him. He seemed sorry enough, but said he must do as the Almighty demanded. In various interviews he always admitted the killing, and always justified it by his delusions; he seemed to be very sorry that it had to be done. Upon other topics he talked as well as could be expected with his limited education, showing a good memory, and emotional control. He had numerous stigmata of degeneracy. After two jury trials he was condemned and in due time hanged. No postmortem was permitted.

A definition of paranoia is essential as it has been frequently misapplied.

Paranoia, literally translated means, "close to understanding", the first term applied by Mendel is synonymous with the German *Primäre Verrücktheit*, the French *Delire Chronique à Evolution Systematique*, and with the English terms *monomania* and *chronic primary delusional insanity*.

It is almost unanimously conceded that paranoia is nearly always due to inherited structural weakness of the nervous system. In fact so strongly does Berkley of Johns Hopkins believe this, that he says, "For my own part I have never seen a paranoiac in whose case a full and complete history could be obtained that did not have an hereditary history of drunkenness, of family neuroses, or actual insanity."

With this strong position some able observers disagree, notably Mendel and Magnan. They maintain the only paranoia of early development should be considered as of the hereditary degenerative type; and that those who have reached middle life before the disease develops should be regarded as non-hereditary. The Italian school of Psychiatrists generally maintain that paranoia may be primary in some subjects and secondary in others; that when it is primary in an individual it succeeds a generalized insanity in his ancestors; when it is secondary, the insanity is confined to one individual. (Regis).

The American Psychiatrists generally are committed to the view that paranoia is a primary psychosis founded on an hereditary basis. It may first manifest itself in middle life under the influence of various causes. These may be slught and of short duration; serious mental shocks, or simply the long continued wear and tear of life; the battle against poverty and want; the stress of society; the complications of business domestic infelicity, and so on.

The development of paranoia is one cursed with neuropathic ancestry is gradual from earliest childhood. The future paranoiac is either above or below the average in the early accomplishments of talking; walking, the use of hands.

As the child passes into youth, physical peculiarities, which mark them from their fellows often become apparent. Mentally it is noted that they are either unusually seclusive, irritable, dreamy, and introspective. Although they are often studious they seldom are exact, so that their progress in science and mathematics is less satisfactory than in art, language and history.

When the duties and responsibilities of manhood and womanhood are assumed their inability to resist the strain of life's discipline is manifested in various ways

If plans fail, and endeavour does not meet with success, then the suspicions of the individual against others are aroused. Self is not blamed. The patient becomes more and more under this domination, until from suspicion the individual passes into systematized delusions of persecution, and keeps aloof from his friends from whom he conceals his delusions.

Hallucinations of hearing usually accompany the disease. The history of the paranoiac often includes the story of wandering from place to place to avoid the conspirators and vain attempts to escape from the persecuting voices.

Other patients are not secretive. They make confidants, and tell of their persecutions, and explain their strange behaviour.

Owing to the continuation of delusions and hallucinations for many years about one-third of the patients pass into a stage of grandeur. This stage is marked by delusions of changed personality. Because he is chosen for some great mission, he is persecuted and the conspirators are attempting to thwart him. In this stage environment, education and natural ability have much to do with the development of various types.

The politician believes in his call to power; the fact that he does not attain it laid at the door of the wicked, unpatriotic, or unappreciative. The disappointed inventor is possessed with the delusions that the patent office is in league against him. The religious enthusiast passes into a state of religious exultation and believes himself called upon to redeem mankind from the fetters of sin.

During all this time the paranoiac may retain his reasoning powers to a marked degree. He may engage in his business and attend to the daily routine of life, and

conversation on other topics is often well and logically sustained. Paralytic power with literary ability is not uncommon, this latter being well marked in Peterson's case, the author of "The Piling of Tophet." This book is an autobiography written by a paranoiac, who, previous to his admission to the hospital had attempted suicide with a revolver, and who also had delusions that the people of the village were acting upon him by magnetism, spoke disparagingly of him, and were conspirators against his peace. Of this autobiography, extracts of which appeared in the *American Journal of Psychology* 1889, Peterson said—"I believe no better idea of the typical form of paranoia can be obtained than by its reading."

It is the graphic picture of steady evolution of the malady, a remarkable self-dissection of the soul's anatomy. I must deny myself the pleasure of quoting more than the preface of this manuscript. It is sufficient to illustrate the literary ability of this paranoiac at a time when he was fully under the domination of his delusions.

"This work is given to the public as a lunatic's defense of his position. Every effort I have made hitherto to come to an understanding with my fellow-men, on things which I see to proceed from them, and which give my life its whole shape, has drawn out nothing more than blank denials of all knowledge of the things I spoke of. Now, it is impossible for me to reduce my thoughts to the bounds which others have been willing to concede. The object of this little autobiography is to show the form and consistency of the thought that is in my mind.

"I present my evidence to the tribunals of last resort, the public and the press, and ask them to try the case and render their verdict. Have I a right to my thought, or have I not? If not, where am I deceived? If I have, why is not mine the true thought of all men?

From my own cases in medico-legal practice I have selected two paranoiacs indicted for murder in the first degree.

No. I, A boy aged 19, of good family, without previous quarel, suddenly and without warning shot and killed a man in broad daylight, in a busy street- He was immediately seized and disarmed and taken to jail. The boy talked freely of the shooting and maintained that he was justified in doing so. That this man had frequently said to people that the boy was a bastard; that when he went away to a distant State and tried to obtain work at his trade it was refused him, and he knew at once the man had sent on word that the bastard was looking for a job. He went to a hotel in this strange city, and two of the waitresses laughed, and he knew at once that they did so because this man who was persecuting him had told them he was a bastard. He went to sleep in his room and he could hear different voices as they passed, saying, "The bastard is in there," and could hear them speak and call his mother, the mother of the bastard.

Of course, there was no arguing with the boy that his victim did not know these people and could not possibly have informed them. He was confident he had punished justly the defamer of his mother, and that he had done right.

He was angry at the thought that his lawyer should call him insane, and wished to be defended on the ground that he had done right, and that any right minded and right thinking man would have done as he did.

After three days of interviewing him and observations and taking testimony of his friends and neighbours, the experts for the people, Dr. Ford of Utica, and Dr. Mac Donald, of New York, and the writer, reported to the District Attorney that the prisoner was insane and that the trial should not go on.

A commission was appointed and the prisoner was declared insane and was sent to Mattewan, the institution for insane criminals of New York, where he has been for seven years.

The previous history of this boy was that of the average school boy. He was as good a pupil as most of his class. After leaving school he went into his father's store and learned the trade of watchmaker, and spent a large part of his time at work repairing watches.

Gradually it was noticed that he withdrew from social gatherings, that he would not talk with people, and that he spent much of his time by himself. In the last year before the shooting he made two trips away from home, saying that he did not wish to work there longer. He returned both times, saying that "they were against him."

In deciding that he was a paranoiac we came to the conclusion that he knew the general difference between right and wrong, and that he thoroughly understood the consequence of the act of murder. But that this particular murder he believed to be right.

When he was examined by the Commissioner and declared insane by them, he expressed himself as much disappointed; that as he had done right in killing this man he should be tried and justified. He had no fear of conviction.

I have heard of him from time to time since he has been at Mattewan. His delusions are the same. The statements are often repeated, that he ~~did~~ right, that he was glad he did it, and would always say so.

The other case of homicide by a paranoiac was studied by me as the chairman of a Lunacy Commission appointed by the court,

The facts were these:

The prisoner in July last had a slight argument with his employer, and suddenly, and without warning, stabbed him to death. He also stabbed a woman who tried to interfere. After the murder he disappeared and was not heard of for five months. He then returned, and meeting one of his friends, said he had come to get a job. He was arrested and committed to jail to await trial.

The fact that he returned, and his peculiar behaviour in the jail resulted in the appointment of a Lunacy Commission.

The prisoner was of good build and appearance. He presented none of the stigmata of degeneracy.

The history as given by him, and by persons who had known him was as follows;

He received an ordinary common school education. He never associated much with people, because he thought they laughed at him, and did not like him.

About five years ago when working for a farmer, a telephone was put into the house and his suspicions were aroused. He had less to do with his fellows, always preferring to be by himself. Suddenly he left his employer, without giving a reason other than the telephone messages. He went to Atlantic City, went from city to city along the coast down to Florida, working a short time in each place, and then suddenly leaving, without any other reason than the one that the telephones bothered him.

After continually changing his place of residence, he finally returned to his native town to seek employment. In this town he was hired on a farm, and did his work satisfactorily. He frequently complained to the housekeeper, that he did not like to have people talking about him and telephoning about him.

One day after a dispute about the time of milking, he announced his intentions to leave at once, and asked for his wages. In the discussion he attacked his employer, and killed him.

To me he explained his going away as having nothing to do with the crime; that he had planned to go before; that he had often been to Atlantic City that he went to get work, and to get away from the people who always telephoned about him. People always seemed to know who he was and what his business was. He came back after being away five months, because he did not know the man was dead. He did not know he was wanted. If he had been wanted, they knew by telephone just where he was all the time, and could get him at any time. So he came back and was going to work, when he was arrested.

This man knew murder was a crime, and was punishable by death. He was able to reason correctly about the gravity of his situation, and denied that he had killed him, but said he remembered striking him. He had thought of killing other employers and persons, just to stop the persecution by telephoning about him. He thought if he should kill some one it would be a lesson to others to stop the annoyance and the hounding. He justified himself by saying, "A man has a right to protect himself."

The more we study cases of paranoia, the more firmly must we be impressed with the dangerous possibilities of the disease. In discussing the best method of dealing with these patients we must remember that the first duty of the State is its own protection of its different communities, and that the verdict of "not guilty" because of insanity, does not mean liberty.

We must remember that although the idea goes forth that the insane man is not responsible for his crime, the

erroneous impression is abroad that the lunatic go "scot free." I cannot speak for every State, but certainly in the State of New York a verdict of "not guilty, because of insanity" in a case of murder is practically the same as a sentence for murder in the second degree,

The public must be educated to the fact, that the man does not get his liberty by the verdict of not guilty when rendered because of insanity, but on the contrary, the prisoner is taken into an institution where the Governor's pardon does not reach him, neither does he ever obtain release when the type of insanity is paranoia for paranoia is chronic and incurable, tending with the lapse of years to dementia.

In reference to this question, the late Dr. Eskridge, of Colorado wrote; "If the paranoiac who commits a crime in consequence of his delusions is not responsible, what shall be done with him?" Every State should have a criminal insane asylum, in which all the insane who have taken human life should be committed for the remainder of their lives. In the absence of a criminal insane asylum they should be imprisoned in a state penitentiary for the rest of their lives. This view in the most recent textbook on "Legal Medicine" shows how unsettled is the opinion of the medical profession on this point.

I, myself, can only subscribe to this doctrine of perpetual detention as it refers to the paranoiac.

CLIMATE AND TUBERCULOSIS.

BY FREDERICK SOHON. M. D., OF WASHINGTON, D. C.

A proper view of assistance in the cure of pulmonary tuberculosis by climatic aid is that it may favorably influence the course of the disease by securing a change in the existing cycle of faulty economic processes. A judicious change of climate may give immediate relief from some of the deleterious influences under which the disease was contracted and made headway. This relief in itself may favor a more harmonious relation among interdependent functions and so serve as a brake to stay a downward tendency and to give on impetus to the restoring of health. This turning toward proper physiological activity and the initial impulse toward the stifling of the disease will be the theme of the following.

When tuberculosis is contracted one has already descended preliminary steps in the scale of health, and it is unreasonable to hope that he will regain strength or free himself of the contagion among conditions under which he has succumbed. Nature must be forced to take up her own work in a system already below par, and she must be

given a fair chance to begin this work. To get decided results necessitates decisive steps, not necessarily involving a radical and permanent change of everything affecting business or social interests, place of life-long residence, etc., but decisive to the extent of obtaining a decided betterment from the conditions which favored the contraction of the disease. Among these conditions are climatic features which have much to do with the prevalence of tuberculosis in particular regions and they must be taken into account in seeking relief.

Climate itself is not a specific, but climatic conditions may be used as stimulating agents toward a cure.

In this chronic disease the body still retains some adaptability to environment, and such climatic items as altitude, temperature, relative humidity, etc. are secondary in importance to the getting rid of the influences which burdened the economy and they are only curative agents in so far as they meet special indications and change for the better some vicious element in individual cases. Therefore the question of a particular climate should be taken up as are therapeutic agents having indications, doses, and incompatibilities.

Thus in cases of a pronounced catarrhal type the poisonous exudations still further increase the bacillary fertility of the pulmonary tissues and the deterring factor can best be met and relieved by a dry and somewhat rarefied air. On the contrary a rarefied atmosphere may cause dyspnoea and pulmonary congestion when the respiratory capacity is much diminished. The transitory blood changes which occur at high altitudes may be of immediate service to anaemic patients, while to the sedentary, and to those in whom the infection was planted when they were debilitated by other diseases, the stimulation and tone of a mountain life might also be beneficial. On the contrary those of a nervous temperament are not fit for

high altitudes or other places where exertion and excitement are incessant and the liability to hémorrhage is increased by going to such places. Cases in which the dominant trait is exhaustion may do nicely anywhere in a calm country life or at the sea shore, and receive there an impetus toward health even though conveniences and other desirable factors may not be as favorable as at home. When there is a rheumatic or other constitutional taint to drag down the general health the cure should not be risked in localities subject to dampness, storms, or other influences which tend to light up the underlying dyscrasia. One whose pulmonary resistance has given way under the constant irritation of a dust-laden air would be advantageously placed if saved this irritation and the resulting waste of nerve strength by a sea trip or by going where dust is diminished by a snow covered ground or even by frequent rains.

Such indications as the above are strikingly applicable when detailed, but they are too often neglected and the selection of a desirable climate treated in a routine manner.

Above all else it is not well to consider too prominently the fact that the lung is diseased; there must be a weighing of the individual tendencies and of the personal equation in the consideration of a change of climate.

It is perhaps needless to remark that cases in the advanced stages of the disease are not referred to in the foregoing. When aids which one might have tipped the balance have been neglected, or were not obtainable, the consumptive will most often have a smoother, if not a longer, life by remaining in his own home.

When considered along these lines special climates do not possess the specific importance heretofore ascribed to them, but although patients can get well almost anywhere there is the greater possibility that they might not. There exists a general appreciation of the importance of checking

tuberculosis in the early stages when there is less to cure and a less depreciated system to depend upon; similarly, considering this fact, while waiting on a slow improvement the disease is extending its area.

A decided break in the faulty cycle is necessary and is best secured by a removal to a locality where the upward step will be forced immediately.

Invalids are certainly more quickly invigorated at some places than at other, but present day research, for instance the recent ascertaining of radio-active constituents of the atmosphere at high altitudes and over snow fields, again reminds us that our knowledge of physical conditions and our understanding of the influences which allow better results in favorable regions are but in a transitional stage, and the full explanation of the effect of certain climates as influencing health must be left to the future.

Contaminations of inorganic dust may irritate an inflamed area, organic particles may become poisonous when inhaled, and air borne microbic life may and other contagions on fertile ground and thereby increase the severity of the disease.

A relative absence of such atmospheric contamination must favor the regaining of health, and this is a partial explanation of the better results secured in favored localities.

It is notable that wherever the best results are obtained—be it among mountains where changes of temperature are sudden or in lower hot and dry regions, along moist and balmy shores or in regions of bracing cold—there is always present in such places an abundance of sunshine. in striking contrast to where tuberculosis is most prevalent and most fatal.

Though sunlight is everywhere there are local differences in the quality of the sunshine as well as in the quan-

tity. The air is denser toward the sea level and the watery vapour, carbonic oxide, dust, and other heavier constituents of the atmosphere are nearly all in the lower strata. These complex molecules and particles are obstacles to the passage of the rays of the sun and especially hinder those of a shorter vibration-period. Hence there is a loss of energy-imparting rays even when there is no appreciable diminution of light, and consequently at altitudes above the lower contaminated strata and in dustless or dry localities the sun's rays are more potent.

From observations in the far north I am inclined to the opinion that latitude also may have something to do with the potency of the sunshine. Among the radiations from the sun are included some of those affected by magnetic field, and the earth acting as magnet might deflect this portion of the stream of approaching waves.

This thought is merely advanced as another hypothesis in the present transitional state of Climatology.

When cases of a mixed infection have been reconvered back to the type of a simple tubercular infection, and the combat thus limited to nature and the tubercle bacilli, a cure should ensue in early cases, for the unsupported tubercle bacillus is not an aggressive opponent. The infection may have such slight activity, or be so well withstood, as to be practically quiescent for years but will flare up under other inflammatory affections. In other cases a real cure occurs, and then the so-called relapses are distinct new infections in a lung already scared by the previous attack. Regarding relapses either as a reactivity or as a reinfection, it follows that when one is apparently cured his remaining free from the disease depends on his holding to the same standard of vigor which served to overcome it. In this connection it will be observed that the special climatic features which were so desirable before have served their turn and are now not needed.

Whatever may be the climate of the convalescents former home, he lived there for years before contracting tuberculosis and he can live there again with safety as far as climate alone may have to do with his case, except there be local features to provoke a repetition of other conditions to which he might succumb.

If the object of a change of climate in tuberculosis is to relieve the economy of extraneous retarding influences and to stimulate flagging energies, then the places par-excellance are in the Artic, where in the summer months some localities hold all the essentials to force and carry on a rapid and decided impetus toward a cure. I have elsewhere * already described the conditions in some of the fords which enter the interior of Greenland, where the sun does not set during the summer months and for days at a time unintermittently shines most potently to impart vitality.

Every breath is taken in a sterile and entirely dustless air which brings no additional infection, and there is a complete absence of colds or other catarrhal affections to provoke exacerbations of the disease. The bracing climate has a temperature about 40° F. and the daily variations are less than occur in the single hour following our sunset here. Also perfect nerve rest is secured without accompanying monotony.

In the Artic the anaemic men and animals who have been deprived of sunlight during the winter, and the vegetation, all leap into pronounced vigor in the summer months as if Nature not only compensated then for the past darkness and cold but would, in the short time, rejuvenate and fortify all against the next depression of winter.

An exaggerated forcing of vitality such as this is

* American Medicine, April 23, 1904.

Washington Medical Annals, November, 1904.

what the tuberculous need to begin and ensure their cure, and it might also be said to figuratively represent alike the object and the utility of climatic treatment.

DIET IN TUBERCULOSIS,

BY H. W. WILEY, M. D.

I think it may be safely said at the beginning that there is no particular diet which may be regarded as curative or even prophylactic in respect of tuberculosis. In so far as diet, in any of its modifications, may give better health and thus better resistance power to the system it is useful as a prophylactic and as a remedy for tuberculosis. It is evident, however, that no form of diet, no matter how nutritious and digestible, could withstand the steady inroad upon health and vigor which the diminishing capacity of lung surface induces during the progress of the disease. The object of the physician in so far as diet is concerned therefore should be to suggest and recommend that menu which is best suited to each individual patient. There are some forms of nutriment, however, which have deservedly won a high place in the nutrition of those afflicted with this dread disease. Among the first of these may be mentioned the oils and especially cod liver oil. A close second to cod liver oil is olive oil and in some cases I doubt not it would prove superior, especially in those cases where

cod liver oil is distasteful to the patient or produces any unpleasant consequences. In several cases of digestive inefficiency which have come under my own observation and where I have recommended the use of olive oil, very happy results have been secured. These, however, were not patients affected with tuberculosis but only incipient indigestion.

Oil of the class mentioned are chiefly useful by their faculty of being transformed into heat and energy. They have little or no nitrogenous elements and, therefore, are not suitable for the nourishment of any of the nitrogenous tissues of the body. They are, as a rule, quickly and easily digested and furnish an abundant amount of heat and energy. It is claimed for cod liver oil that it contains some of the most valuable medicinal agents known to man. Among these may be mentioned iodine which exists in very minute traces and can not be detected by incineration of the oil or by saponification and subsequent decomposition with acids, but only by saponification and incineration of the residual soap. These data show that iodine, if present at all in cod liver oil, is not in the free state nor as a metallic iodine, but probably in some organic combination. Bromine is also said to exist in small quantities in cod liver oil but the quantities which are found are extremely minute and probably would escape all ordinary methods of detection. Chlorine is present in quantities which can be estimated and probably amount to a little over 1/15 of one percent. The phosphoric acid which cod liver oil contains must be regarded as one of its most valuable constituents although it is present in minute quantities, probably not much over 0.05 of one percent. Both the phosphoric acid and sulphur which are found in cod liver oil probably exist chiefly in the organic state. It will be useless in this connection to try to enumerate all of the various constituents which it is alleged have been found in cod liver oil. I have before me an analysis of a cod liver oil in which 51

different substances are found. It must, of course, be admitted without question that this oil does contain a number of these organic compounds to which I have alluded and also many inorganic substances, and these, individually and as a whole, doubtless contribute much to the efficacy of this long used and highly valued food and remedy. The bulk of cod liver oil, as is recognized by every one, is ordinary olein which forms the bulk of the other edible oils, and it is to olein, therefore, that the chief food value of oil must be attributed. The effect of other constituents must be regarded solely as remedial. I think it would be advisable for physicians to try, more extensively, olive oil and other vegetable oils in disease of this kind. The other food material which has justly attained a high position as a nutriment for persons troubled with tuberculosis is alcohol. Alcohol is exhibited in a great many combinations, rarely as pure ethyl alcohol. More commonly it is used in the form of beer, wine, whisky and brandy. In the case of beer and wines there are other constituents which must not be neglected in regard to their food value, commonly known as extractive material. They consist largely of carbohydrate bodies and also contain a certain amount of albuminous constituents. Organic acids are also present either as free acid or as salts, and in wine this is especially true of tartaric acid and its salts. Tannin is also one of the essential constituents of wine and in beer the bitter principle derived from hops must be assigned a certain value.

When I speak of whisky I mean what is known as straight whisky, that is, the distillate from the fermented mash of cereals, stored in wood until properly aged. This again, according to general opinion, removes the greater part of so-called fusel oils, converting them into ethers and into aromatic substances which give to whisky its aroma and flavor. It is claimed by some that this oxidation of the higher alcohols does not take place during again, at

least not to the extent commonly supposed. In whisky, however, the chief element to be considered is ethylic alcohol. It has been shown that the human organism in a state of health is capable of oxidizing and converting into energy a considerable quantity of ethyl alcohol daily. In a debilitated state the quantity which could be absorbed and digested would be less. In many maladies whisky and brandy have apparently been used to great advantage and doubtless such is the case in tuberculosis. It may be stated in this connection that the alcohol, as is true of oil, is readily and quickly absorbed and before becoming oxidized into water and carbon dioxide, it produces a gentle stimulation which seems to favor the general metabolic process. It thus has a double value arising first, from stimulation, and second, from its food effects.

By brandy I mean the product of the distillation of wine, stored in wood, as in the case with whisky, until properly aged. Unfortunately, as we know, many of the brandies of commerce are anything but what they claim to be, just as whisky of commerce is often made artificially by means of mixing pure alcohol with essences, coloring matter, prune juice, straight whisky and other ingredients.

I do not want to make any invidious comparisons in this place between the two kinds of whisky and the two kinds of brandy mentioned above, only it seems but fair that the medical profession, in prescribing whisky or brandy, should be reasonably certain of the character of the material which patients are to use.

In the way of general diet for those afflicted with tuberculosis, little can be said. Every case must be studied particularly in this selection. Any single form of diet which might be prescribed, while useful to many, would perhaps be very distasteful to other patients. It seems to me that what the patient likes, if it be nutritious, is what

he should have. It does not appear to be essential to force a patient to eat an article of food which he positively dislikes. The mental attitude which he assumes in relation to such a food would certainly be unfavorable to its maximum good effect. Naturally those articles of food which are easily digested commend themselves most of all. Milk, eggs, rare cooked meats, soups, fruits, vegetables and wholesome bread, not excluding game, fish, oysters, ect., furnish a list from which the physician and the patient should be able to select a nutritious and palatable diet. I have little confidence in any set form of diet which could be applied in general, just as one formula for a fertilizer might be very suitable for one field and not for another. Good sense, good judgment and a knowledge of the character of material at hand will lead to the right results.

In this connection I beg to call attention to the fact that the adulteration of foods which are to be used by invalids is utterly reprehensible. The presence of antiseptics in such food might be very disastrous and artificial coloring matter and a cheaper substance added in place of a more expensive one are also extremely reprehensible. Every food product which a physician prescribes for his patient should be pure as well as wholesome.

The value of a correct diet is acknowledged by all. It may tide a patient over a crisis by giving strength to overcome the predatory character of the disease.

It is probably true that tuberculosis can not be cured, but the physician may so conduct affairs that the patient gets well and this is almost as good as curing the disease.

THE ACQUISITION

OF SYPHILIS EXTRAGENITALLY BY MEDICAL MEN BY
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The object of this paper is to present in as realistic a manner as possible a danger to which medical men are continually exposed, and to draw attention to the indifference they exhibit toward the terrible calamity of infection by syphilis.

I shall never forget the impression one of my friends made on me. I sent him a patient with epithelioma of the tongue, but warned him that the man was suffering from secondary syphilis with mucous patches in the mouth. He took the information so coolly that I said, "Are you not at all afraid to operate on such people?" He said in reply, that he would operate on a man with early syphilis as readily as on any other.

It was a charity case, yet this surgeon was willing to take the risk of being inoculated by the sputum or by a bite, not through conscientiousness, nor even from bravado, but because the possible consequences seemed not

to appeal to his imagination, and he was willing to run the risk of bringing to his family the malady that has more ways of tormenting the human race than any other in the round of medicine.

Not long before I had seen a very dear friend stricken down in the midst of an active surgical career, and in a couple of years transformed from a purposeful, decided operator into a palsied aged man, quickly to die.

The accidents strike medical men much more frequently than personal experience or statistical data indicate. By far the greatest number of infections would appear to occur in surgeons, especially in genito-urinary surgeons. It is the old story of handling edge tools, with, in addition, a most virulent poison awaiting a favorable point of inoculation. Next to surgeons come obstetricians and gynecologists, while the remaining infections are scattered promiscuously throughout the other branches of our profession.

The following list consists of seven cases. In two the virus was inoculated in cuts received while operating on patients suffering from syphilis.

The first was a physician, about 36 years of age, from one of the Middle States who while on a short visit to San Francisco, broke out with a severe rash. I found a macular syphilide of the trunk, limbs, face, palms and soles. Both epitrochlear lymphatic nodules in the left axel.

He then gave the following history: Seventy-two days previously while circumcising a man suffering with chancre of the foreskin, he slightly wounded himself on the outer side of the left forearm a little above the wrist. Sixteen days after the operation, an ulcer covered by a black scab appeared in the situation of the wound. This scab annoyed him while on the train by the edge of his cuff catching in it. The lymphatic nodules at the elbow and in

the left axel then began to swell, and the rash developed in due course, When he called on me there was a dark red spot, the size of a nickle where the ulcer had been.

Another physician, a man thirty-one years of age, came to me on account of a widely spread papulo-roseolar rash. He said that three months before, while removing the breast of a woman of 47 years of age, for what was supposed to be a cancer, he stuck himself with a knife under the nail of the left ring finger. The finger afterwards had felt a little sore, but no serious trouble arose for about two weeks. He then got an atrocious pain under the nail, with swelling and redness, followed in a short time by terrific headaches, which endured up till the the time I saw him. The roseolar rash developed about six weeks after the operation.

Such experiences teach the value of thoroughly washing off and burning out every wound received while operating on any case where there is the least suspicion of the presence of syphillis.

The rending pain above referred to is a usual occurence in chancre involving the nail bed, and the doctor's conversation while under its stress could not be said to be without sin. Yet considering the provocation, one could say it was without reproach before men. Another acquaintance who inoculated himself while operating for phimosis, and whose chancre also involved the nail bed, stilled his pain by bathing the finger in a strong solution of carbolic acid. He never grew tired of reiterating the expression of the relief it gave him.

One of my patients was infected while attending the confinement of a woman who neither in her own person nor in that of her newly born infant showed the least sign of syphilis.

The physician in this case was a man of fifty years of

age, who came to me on account of an ulcer over the joint between the first and second phalanx on the radial side of the left index finger. This ulcer was crusted and had a dark red, raw ham colored, rolled, unfiltrated border. There was no enlargement of the epitrochlear lymphatic nodule, or of those in the axel. He said that fifty-seven days before, he had been bitten by a pet parrot, and that the wound had never healed. He was able to precisely fix the date of the bite by coincident events.

The discharge from the ulcer was examined for tubercle bacilli, but fruitlessly, and then our ingenuity was taxed in trying to guess out the nature of the lesion.

I did not then know that there could be a well developed chancre of the finger without demonstrable swelling of the epitrochlear lymphatic nodule or those in the axel. To further complicate the diagnosis, the next day after first seeing him, the doctor got swelling and redness of the entire back of the hand with streaks of lymphangitis running up the forearm.

Thirty days after I first saw him, a papulo-roseolar rash appeared on the free cutaneous surface with roseolar spots in the palms and soles, and a slight enlargement of the lymphatic nodules developed in the left axel. These symptoms of course cleared up the diagnosis. Shortly afterwards he got mucous patches in the mouth. The following history then came to light:

The doctor had been bitten, as he said, by a pet parrot and three days afterwards he was called to a confinement. The patient as before mentioned, showing no signs of syphilis. The doctor thought he had his wound perfectly sealed with collodion and cotton. The child born seemed perfectly healthy, but shortly after birth developed well marked symptoms of syphilis. As far as the mother and child are concerned, this absence of symptoms at the time

of confinement is not uncommon. It is one of the traps that a doctor may fall into.

This is a good demonstration of the ineffectiveness of the old method of protecting wounds on the hands with collodion and cotton. In all probability this infection would not have occurred in an equally careful practitioner if the present thin rubber finger cots had been available.

We can also draw another moral from the case, for it shows the danger a doctor runs in playing with pets. And how enticing it is! I, myself, can hardly refrain from playing with a kitten, although I have constantly present in mind the dangers arising from scratches on the hands.

According to the literature, obstetrical manipulations afford, as one would suppose they would, a favorable opportunity for infections of this sort. The woman is young and in the midst of her sexual life, and therefore if she is to have syphilis, will likely have it then. Two of the ten cases reported by Brandis were acquired while attending woman in confinement. In these two instances the fruit was born dead, and the mothers subsequently suffered from condylomata of the genitalia. (1)

In Prince A. Morrow's list of ten cases of professional syphilis, seven ascribed their infection to digital examinations or manipulations in obstetrical or gynecological work. (2)

Gynecologists, especially when examining the Pandora as that frequent the public clinics, continually run a considerable risk of acquiring syphilis. The following is a good example of this class of misfortune:

(1) Syphilis Gravis in Medical Men by Dr. Brandis. Deut. med. Wochensch. 1891. No. 21, Abstr. in Brit. Journ. of Dermat. 1899, p. 210.

(2) Jour. of Cutaneous and Genito-Urinary Diseases 1896, p. 125.

A medical student, 25 years of age, asked my advice in regard to a dark red, lenticular, ten-cent-piece-sized, fairly firm lesion, situated on the dorsal surface of the web between the right index and middle fingers. This first appeared about two months before consulting me, as a flat dark papule. About forty days after this lesion was first noticed he became aware of three enlarged lymphatic nodules in the right axel, a large one and two small ones. Eighteen days after this a roseolar rash appeared on the arms, trunk and thighs.

He had examined a woman in the gynecological clinic, who was suffering from early constitutional syphilis, and the situation of the chancre was correspondent to the manner of inoculation.

Later he had mucous patches in the mouth.

In such clinics there should always be an abundance of vaseline or some other heavy fat to thickly anoint the hands before examining a patient. Rubber gloves are, of course, too expensive to come into general use, and besides they interfere with the sense of touch. All wounds or scratches on the hands should be carefully guarded, and, of course, on the least suspicion no one having a fresh wound should examine a patient. But, as a matter of fact very few doctors and still less medical students, will refrain from making an examination through fear of contaminating themselves through a wound.

A number of medical men get chancres of the hands and fingers without being able to indicate any more precisely the mode of acquiring the disease than that they had attended a patient having syphilis. I have had three such cases.

A doctor, thirty-five years of age, consulted me for a papulo-squamous syphilide of the trunk and limbs. The site of the initial lesion could be easily made out, as a dark red macule toward the radial side of the dorsal aspect of

the lower third of the right forearm. Besides the rash, there was a universal adenopathy, and a slight sore throat. The doctor said that he had attended a patient having syphilis over four months previously, and that the lesion on the arm had manifested itself about two months previously, and that the lesion on the arm had manifested itself about two months after attending this patient. The dates could not be precisely given.

Another physician, twenty-six years of age, consulted me on account of a chancre of the left side of the lower lip. He said he had first noticed it in a "cold sore" about two weeks previously. Some time before he had been treating a patient who was suffering from what he thought to be chancroid, but which turned out to be a chancre. He probably infected his "cold sore" by thoughtlessly touching it after having handled the patient's lesion.

He showed a roseola of the thrunk with papular syphilides of the palms, soles and penis, and enlargement of the lymphatic nodules corresponding to the sore on the lip. He afterwards developed mucous patches in the mouth.

A physician, 29 years of age, consulted me on account of an ulcer, about the size of a nickle, showing profuse granulations and a dark red border, situated on the radial side of the terminal phalanx of the right index finger. There was no lymphatic engorgement, either at the elbow or in the axel.

He said that a swelling had appeared in this situation exactly one month before. Afterwards it broke down into an ulcer, and previous to coming to me it had been curetted. He also said that two months previous to consulting me, that is, one month before the appearance of the lesion, he had treated a patient with phimosis. In the absence of lymphatic engorgement, a diagnosis of chancre could not be made. Fifteen days after I first saw it, that is to say a month and a half after the appearance of the lesion, a

roseola broke out on the patient's belly. Two days afterwards a slight swelling of the right epitrochlear lymphatic nodule was noted, and for a few days he had a temperature running from 99 1-2 to 100.

Such cases show the value of always washing the hand after touching a patient so that the custom will harden down into an involuntary habit. A slight rinsing is usually sufficient. It is well not to make it too elaborate or it will not be done except on great occasions, and it is the apparently slight occasion that one has to be on one's guard about. A dilution of the syphilitic virus of 1 to 500 is enough to render it innocuous. (1)

Another excellent rule is to carry a couple of rubber finger cots in a little box in the vest pocket. Any of those little tin boxes that patent or proprietary medicine houses shower down on us will do admirably for the purpose. If you do not happen to like the advertisement on the back, scratch it off with your pen knife.

(1) Pospelow Arch. f.Derm. u. Syph. 1899. S. 92.

Pelizzari relates a case exactly in point. An aged male nurse while assisting a surgeon in removing some vegetations from a syphilitic woman, soiled his hand in the blood. He did not immediately wash, and acquired a chancre of the hand.

An. de Derm. et de Syph. Serie II Tome IV, page 14.

That such a washing may be ineffective goes without saying for we have to do with an extremely virulent poison. Fournier relates that he had seen five chancres of the eye in medical men caught from sputum ejected from the patient, three of them washed their face well after the accident, but this did not prevent the chancre appearing. He advises using, instead of water, bichloride of mercury solution, (1-1000).

Les Chancres Extragenitaux, p. 194-195-196.

The objection to the routine use of strong antiseptic solutions is that one may run into the danger one attempts to escape, for, as pointed out by Taylor, their employment by causing eczema and fissures, exposes to the risk of infection.

R. W. Taylor Journal of Cut. and Genito-Urinary Diseases, 1898 p. 339.

In the above seven cases one of the chancres was situated on the lower lip, and the other six were on or near the hands where one would expect to find them. Of these six, three occurred at or near the index finger, and in all of these six cases the initial lesion was situated on the dorsal or lateral aspect, none on the palmar aspect of the extremity.

Chancres of the fingers are relatively rare, and they almost always occur in physicians. All of my cases except two of chancre in this situation were in medical men, and of forty-nine cases that Fournier has seen, thirty were practitioners of medicine. Twenty of them were in physicians and surgeons, three were in medical students who were attending genito-urinary clinics, and the remaining seven were in obstetricians. (1)

According to the literature the index finger is the most frequently attacked (2). Next in order comes the middle finger. The thumb and the little finger seem to be the next most exposed, and the ring finger is rarely attacked. One of the dangers the middle finger seems to lie in its being allowed to rest on the lower lip while an instrument is being held in the mouth of a syphilitic patient (3), or on the external genitalia, when the index is inserted into the vaginal canal.

Chancre of the eyes is also a relatively rare affection, but the proportion of medical men getting it on patients

[1] Les Chancres Extra-Genitaux par A. Fournier page 447---450.

(2) In all of Brandis' ten cases the chancre was situated on either the index or medius. Syphilis Cravis in Medical Men, by Dr Brandis.

In a list of ten cases of professional syphilis given by Prince A. Morrow, five of the chancres were situated on the index finger. Journal of Cut, and Genito-urinary Diseases, 1896, y. 125.

(3) Whitehouse Journal of Cutaneous and Genito-urinary Diseases, 1898 p. 339.

belonging to other classes is as one to fifteen. (1) The infection is usually transmitted through sputum during the examination or treatment of syphilitic patients. Many of them are unable to resist a sudden attack of coughing, which sends out a spray of infected saliva into the doctor's face. Fournier has reported five such cases. (2) Debeck has reported six cases of chancre of the eye, three of whom were in midwives. They were infected either while cauterizing lesions in the mouth of their patients, or by inoculating themselves with their fingers after having handled specific lesions. (3)

Unless it is imperatively necessary to do so, a doctor should not stand or sit squarely in front of a patient while examining the mouth or throat.

Usually one can see the mouth and that part of the pharynx directly in view, by standing beside the patient and looking into the mouth as one would look around a corner. In such a position one can quickly dodge if the patient spits or coughs.

One rubs one's eyes several times a day, and this is usually done with the finger tips. A doctor, however, should train himself to rub his eyes with the knuckle of his index finger, as being less likely to be soiled with infectious material. Picking the nose should also be avoided by physicians as apt to convey infection.

We may here stop to speak of a most disagreeable habit that George Washington mentions in his rules on

(1) *Les Chancres Extra-Genitaux* par A. Fournier page 194 195, 196.

(2) *Idem.*

(3) *Chancres of the eye in Medical Men* by Dr Debeck. Contributions from the Ophthal. Clinic, Medical College of Ohio, 1888. Abstr. In *Annales de Derm. et de Syph.* L. II, t. VIII, p. 208.

conduct. Some people have a great desire to approach as near to you as possible while speaking, and their sputum often squirts and sputters into your face. I never yet have found that my shrinking back and half turning away had any effect on those confidential talkers, and the only means of penetrating their obtuseness is by a distinct reprimand.

Several curious ways of doctors acquiring syphilis have been reported, as, for instance, holding between the lips a pen which had been soiled by the fingers after examining syphilitic ulcers. Otis mentions a case of a physician who got an initial lesion just within the right angle of the mouth, attributed to smoking a syphilitic friend's pipe. (1) This might be denoted as a case of unprofessional syphilis. Just think of a doctor using another man's pipe!

C. W. Allen mentions syphilis as being caught by performing insufflation on syphilitic newborn. (2) This is carrying life saving a trifle too far.

Three cases, in Dr Brandis' list of ten, previously mentioned, were attributed to digital exploration of the rectum, two followed wounds received while opening septic buboes, and one occurred after an operation in a case of necrosis of bone. (3)

Taylor has reported two cases and Morrow one where the infection was from the cadaver.

(1) Cullerier's Atlas of the Venereal Diseases, page 43. Translated by Bumstead.

(2) Prof. Bergh's brochure. Quoted by Dr C. W. Allen in a letter from abroad to the editor of the Journal of Cut. and Genito-urinary Diseases, 1888, p. 394 Fournier relates the case of a midwife who became infected in this way, and also cites a case reported by Wigglesworth. [Archives of Dermatology, 1879 p. 374] Where a physician got a chancre of the tonsil through performing insufflation.

Les Chancres Extra-génitiaux, par Alfred Fournier, p. 39.

(3) Syphilis Gravis in medical men, by Dr Brandis. Vide Supra.

Taylor first case was a young physician who infected himself while making a post mortem examination, held eight hours after death on the body of a patient who died from malignant syphilis. The chancre was located on the left middle finger. (1) Taylor's second case was of a physician, twenty-six years of age, who infected himself while making an autopsy nine hours after death on the body of a prostitute. His chancre was located on the finger. (2)

Dr. Morrow's patient was a physician who got his chancre on the terminal phalanx of the left index finger. (3)

At one time it was a current belief that syphilis acquired extra-genitally was particularly severe in its subsequent manifestations. All of the men, the subject of the present paper, were in good health at the time of their infection, were from twenty-six to fifty years of age, and their syphilis, as it afterwards developed, appeared in no way to differ from that caught genitally. The doctor who came to me from The Middle States caught his disease from a patient who went on to have a most malignant syphilis, yet the doctor's infection ran a rather mild course. The doctor attributed the patient's severe syphilis to bad habits and a bad constitution. (4)

(1) Some unusual modes of infection with Syphilis by R. W. Taylor *Journal of Cutaneous and Genito-Urinary Diseases*, June 1890.

[2] *Idem*.

[3] Prince A. Morrow, *Journal of Cutaneous and Genital-Urinary Diseases*, 1898 p. 541.

[4] Dr Brandis in reviewing ten cases of syphilis in medicamen caught extragenitally, says that the subjects were all in robust health, from thirty to fifty years of age, and their syphilis ran the usual course. Syphilis Gravis in medical men by Dr Brandis. *Vide supra*.

These observations were made in Aix-la-Chapelle.

If this paper will cause any one man reading it to become more careful of himself in the handling of those dangerous cases, and so lead him to escape an infection that he otherwise might have had, it will have fulfilled its purpose.

EXTRACTOS AZUCARADOS

POR C. GILBERT WHEELER, DE CHICAGO.

En los extractos azucarados se encuentra un nuevo sistema de medicación, que es seguro y preciso para los médicos, elegante y conveniente para los farmacéutas. Estas preparaciones contienen simplemente la sustancia extraída de la droga respectiva, triturada con azúcar de leche, en la proporción que un gramo del extracto corresponda á un gramo de la droga cruda.

VENTAJAS DE ESTOS EXTRACTOS PARA LOS MÉDICOS.

El valor farmacéutico de un extracto fluido depende del extracto seco ó sólido que la solución contenga en relación con la droga cruda. Esta cantidad de extracto sólido depende de la proporción de agua que tenga la droga, de su naturaleza, de la más ó menos extracción completa, de la relación que la droga tenga con el vehiculo que se haya empleado. En los extractos azucarados toda variación en el valor terapéutico esta evitado por la evaporación en una temperatura bien regulada, anotando al mismo tiempo el por ciento del extracto sólido que haya resultado. Este

extracto sólido está después mezclado con suficiente cantidad de azúcar de leche para obtener un producto que deba pesar lo mismo que la droga empleada, para hacer el extracto líquido. La eficacia del azúcar de leche como agente para modificar el sabor amargo de varias medicinas, lo mismo que la acción preservativa é inofensiva de la misma, hace que el azúcar de leche sea considerado como uno de los mejores medios para la administración de las medicinas.

Para evitar la variación frecuente de los extractos que contienen principios activos (Aconito, Nux Vomica &c) se hace un ensayo para determinar los alcaloides ó principios activos que existen en los extractos azucarados y que deben tener una fuerza fija. Este ensayo se encuentra indicado en la etiqueta.

La preferencia que los extractos azucarados tienen entonces sobre los extractos fluidos, es clara, teniendo en cuenta su estabilidad, su uniformidad, calidad, su poco sabor, el no tener alcohol y la aplicación general á cualquier método de administración.

Estos extractos representan el valor total de la droga, con más exactitud que los mejores extractos fluidos. Porque en la manera de extraerlos, se continua la operación hasta no encontrar materia que deba ser extraída. La cantidad del excipiente no se limita como en los procedimientos oficiales de las distintas farmacopeas y por eso la solución que se obtiene siempre es completa.

En los extractos azucarados, los principios activos se hallan pulverizados y de este modo, no pueden precipitarse ó evaporarse, como suele suceder con los extractos fluidos, á la vez pueden conservarse mejor debido á la acción antiséptica y preservativa del azúcar de leche.

De acuerdo con la opinión emitida por las autoridades más altas sobre la materia, los extractos fluidos son de

fuerza variable y con el tiempo perderán algo de su valor original.

En los extractos fluidos, las sustancias que entran en su composición á veces se precipitan y esta es la razón porque los extractos á veces pierden su eficacia. Debido á la manera de fabricación de los extractos azucarados, estos siempre representan la misma fuerza y calidad. No sucede lo mismo con los extractos fluidos, donde la fuerza varía por el deseo de obtener preparaciones más elegantes. El hecho es bien conocido entre los farmaceutas.

Los extractos azucarados poseen sobre la etiqueta no solamente el por ciento del extracto sólido, sino también los alcaloides presentes, de manera que el valor respectivo pueda ser comparado. La mayoría de estos extractos son solubles en agua, y aquellos otros que no lo son, debido á la materia resinoide que contiene en solución, quedan en suspensión, debido al azúcar de leche.

Estos extractos son muy recomendados para los países cálidos, donde los extractos se precipitan debido al calor.

THE MEDICAL TREATMENT

OF TUBERCULOSIS, BY JESSE SHOUP, M. D., WASHINGTON, D. C.

A history of the medical treatment of tuberculosis from early medical practice to the present, would fill a most interesting volume. From tannin, which was early lauded as a specific, to tuberculin or the anti-tubercular era, the road-way is strewn with forgotten specifics and numerous monuments are erected by enthusiasts and admirers, upon most of which more recent travelers have inscribed as epitaphs; "Later experiments fail to confirm the earlier reports."

I am not so pessimistic as to say that drugs are useless in tuberculosis, nor so optimistic as to claim we have any real specific. I believe that we have in drugs a most useful aid and an ally we cannot despise. They are useful to stimulate exhausted functions, multiply the constructive power of the animal cell, and increase phagocytosis. They diminish the virulence of infection and decrease the destructive power of the bacilli. Iron, arsenic,

strychnin, phosphorus and vegetable tonics increase the number and rejuvenate the red blood-cells and fit them with the oxygen carrier, hemoglobin. Iron is indispensable in the anemic condition and should be given in the most easily assimilated form, organic iron. Arsenic stands second only to iron as a reconstructive agent, increasing the number of red blood-cells, and as a general nerve tonic. It has long been used for the fever, night-sweats and the general debility of tuberculous patients.

The new preparation of arsenic, cacodylic acid, has received a great deal of attention lately, much having been written of its efficacy in the treatment of tuberculosis.

Frassé and Gautier claim that in anemia and tuberculosis the treatment with cacodylic acid is always followed by a gain in weight and an increase in the amount of hemoglobin. Barbary reports lasting benefits from subcutaneous injections every other day of guaiacol cacodylate. Gilbert and others have used iron cacodylate, with resulting increase of body weight and lowering of temperature, disappearance of night-sweats and amelioration of general conditions. Dose, 1 to $1\frac{1}{2}$ grains, hypodermically, and 3 to 6 grains by the mouth. Strychnin as a respiratory, heart and nerve stimulant has no superior, and should be given freely, as should also the various bitter and vegetable tonics, to increase the appetite and promote general nutrition.

Of those drugs used for their bactericidal action, creosote has long held an honored position. I prefer to give it in ascending doses, and furnish the patient capsules and creosote and let him fill his own capsules, increasing one drop each day until the tolerance of the stomach is ascertained, aiming to stop short of interference with degestion; or else give it in cod liver-oil or vaselin emulsions, increasing one drop a day. In this way the signs of poisoning from the drug can be looked for and its use discontinued before dangerous symptoms appear. There is no doubt

that creosote, given in this way lowers fever, lessens cough, changes the character of the sputum and often arrests the progress of the disease. Considerable has been written of the action of creosote in pulmonary tuberculosis and its efficacy is still debatable. Those who hold that its action is chiefly or wholly on the alimentary canal, give creosote in small doses for its local antifermentative effect, while those who believe it is eliminated by the lungs in sufficient quantity to be bactericidal, use the large doses. As a proof that creosote is only local in its action, it is claimed that animals infected with tuberculosis and treated with creosote die as soon as those not so treated. Sputum obtained postmortem from tuberculous patients who had been treated with creosote seem as virulent as that from those not so treated.

Creosote administered in other ways than by the mouth is much less efficacious. The strength of creosote present in the tissues can not, according to the laboratory experiments, have any destructive effects on tubercle bacilli. Against this it has been found (Cushny, Potter and others) that very dilute solutions of creosote reaching the blood and tissue cells tend to increase the activity of protoplasm. Dr. Potter claims, theoretically, that enough creosote may reach the tissues surrounding the tubercle to prohibit its growth. If this be true, a vital point is yielded in favor of creosote, for this alone may often enable the patient to tide over a critical period. In giving creosote by inunction, inhalation, or enema my experience has been that the odor is too disagreeable, and the irritation caused too painful for patients to endure it long; by inhalation it is too irritating and not more efficacious than the essential oils and other less irritating substances; by enema it soon becomes obnoxious to the patient, and he cannot be prevailed upon to continue it in that way. By intratracheal injections it at times succeeds in checking the distressing cough and partially deodorizing and disinfecting

the sputum; beyond this no benefit is gained over administering it by the mouth. Guaiacol has to a great extent superseded creosote in the treatment of pulmonary tuberculosis on account of its being less disagreeable to the patient. It is not so liable to cause gastric distress, guaiacol carbonate is a favorite remedy with many physicians, and I prefer it to creosote. It should be given as creosote is given, in ascending doses, gradually pushed to the point of the stomach's tolerance, I have found guaiacol valerianate an admirable remedy, and large doses can be borne without causing gastric distress. I begin with ten drops in capsules, administered after meals, and gradually increase by drop additions to thirty and forty drops, three times a day, after meals. I have used thiocol, but found it inferior to guaiacol. Dr. Moritz Cohen claims the credit of first using ichthyol in pulmonary tuberculosis. He gives it mixed with equal parts of water, and administers four drops of this mixture, well diluted with water, three times a day, increasing one drop each day until the limit of the patients's endurance is reached. He claims it has distinct bactericidal qualities, and that in a series of 100 cases he had uniform good result. There was gain in weight; bacterial growth was hindered, fever was lowered, night-sweats and cough diminished, the sputum changing from purulent to mucous and frothy. Dr. Scarpa of Turin, has reported 150 cases of pulmonary tuberculosis in which the patients were treated with ichthyol, and considerable permanent improvement was noticed. He gave as high as 200 drops daily.

Dr. Edward Stubbart, of the Loomis Sanitarium, has reported good results from the use of ichthyol. He claims the best results are obtained from large doses. Schaefer, Spangler and others have reported favorably on the use of ichthyol. I have used ichthyol but comparatively little, discontinuing its use because of the disagreeable eructations and nausea resulting. Iodine and its compounds

have long been used with gratifying results in the treatment of pulmonary and other forms of tuberculosis. I prefer to give it in the form of the glycerole of iodine, from half to one drachm, painted daily over the diseased area. It does not blister, and is readily absorbed. It can be discontinued for a short while if it causes too much irritation.

Dr. Hessen noted that cinnamic acid given hypodermically was of benefit, while Fraenkel has noted no benefit. Dr. S. Mann reports good results from Landerer's method of intravenous injections, but concludes by saying that it is a difficult and troublesome treatment. Landerer claims that cinnamic acid increases the number of white blood corpuscles fully 50%, and that it cures by setting up an area of active inflammation around the tubercle. Others confirm this action of cinnamic acid. Dr. Harper was led to give urea for tuberculosis on the theory that carnivorous animals and animals excreting a large amount of urea were practically free from the disease. He claims that investigation will show that rheumatism and tuberculosis do not occur, or seldom occur, in the same families. He gives the urea in 20 to 60 grain doses three times daily either by the mouth or subcutaneously, and claims to have gratifying results.

Later reports do not confirm Harper's theory. So far, serum therapy in pulmonary tuberculosis has not accomplished all that was anticipated. Goetsch, in a series of 224 cases during the last 10 years, has had excellent results with tuberculin O and teberculin R. He never gives it to a patient when there is the slightest rise in temperature and never increases the dose when the preceding dose produces any reaction whatever. To avoid reaction he advises the patient to remain in bed during the day of the injection and the succeeding day. He begins with .0001 mg. He increases the tuberculin O, until the

patient can take 1 mg. without reaction. Klebs considers tuberculin R almost a specific.

The danger of spreading the disease or lighting up the old foci from giving these small doses is practically *nil*, while the larger doses seem to have given better results in selected cases, all agree as to the positive element of danger to the patient from the administration of these large doses of tuberculin.

Favorable results continue to be recorded from the use of antitubercle serum. Dr. Baradat reports good results from the use of Bertin's and Picq's goat serum in doses of 2 cc. every other day. Dr. Baradat claims to get the same results from administering the serum by the mouth, but larger doses are required than when given hypodermically. Better results are obtained by giving the serum for two to three weeks and then giving the patient a rest of a week or two, when the same routine may be gone over. Streptococic serum is worthy a trial in cases of mixed infection. Dose 20 cc for the initial dose, and 10 cc daily, until improvement is shown by lowered temperature, freer expectoration and gain in patient's strength.

If, however, we have no specific in the antitubercle serums of Pacquin or Fish nor in the tuberculin O and tuberculin R. of Koch, I believe we have in them useful adjuncts when used with other medicines. My experience accords with that of those who claim that patients improve faster when the serum is added to other treatment. The time to give antitubercle serum, or tuberculin, is in the first stages of the disease. If we could diagnose the initial lesion with certainty before the bacilli have gained a foothold and administer the serum at this time, no doubt it would come nearer to being a specific.

Nearly all reports on new or old remedies contain a statement that the remedy is suitable to early apex cases or to the early stages of the disease. In the latent cases

the tubercle bacilli, with the assistance of the staphylococci and the streptococci, have long gained the ascendancy and have exhausted the leukocytes to such a degree that they are few in number and resist feebly.

If, then, the leukocytes are the antitoxin-producing element, how can we expect antitoxin to be formed in any great amount from weak, exhausted cells? Their power has already been expended.

Electricity has aroused renewed interest through the X-Ray. Excellent results are reported from the exposure of tuberculous glands to its light, and recently a good authority (Morton of New York) claims promising results in lung cases by previously administering a fluorescent substance until the system becomes practically saturated with the medicine when the X-Ray is turned on and the patient made into a sort of human glow-worm.

This has the advantage of being beautiful to look upon, at least, and since light is the great destroyer of tubercle bacilli, if we are able, by means of some substance, to increase the light effect of the X-Ray, without adding to its caustic effect, much good might be accomplished by lighting up the dark recesses of the lung and exposing the hidden bacilli.

Briefly the author's medical treatment of pulmonary tuberculosis generally consists in daily inhalations of the essential oils of thyme, cloves, cinnamon and eucalyptus with the addition of iodine and menthol with some bland oil as a vehicle. Administering guaiacol-valerianate in ascending doses, beginning with 10 m. and increasing to point of stomach tolerance, as much as 30 or 40 drops, three times a day where the patient's stomach does not rebel against it; carefully watching the kidneys; daily applications to diseased area of one-half to one drachm of the gly-

cerole of iodine; treating symptoms as they arise. This is kept up indefinitely, with an occasional intermission for rest of patient's stomach, until sputum shows absence of bacilli, when the guaiacol-Valerianate may be, gradually withdrawn.

PSYCHO THERAPEUTICS

BY ROBERT EDES, OF BOSTON, MASS.

In the present revision and upsetting of therapeutic notions and the marvellous rapidity with which new drugs are being brought forward and urged upon an eager, not to say credulous, profession; among all the baths, radiations, lights, vibrations, and gymnastic methods, it is not perhaps strange that we find one of the oldest agents in the physicians armamentarium exploited in more or less legitimate fashion, as if it were a new discovery.

We have Mental Healing, Higher thought, Metaphysics and Christian Science and many others each phrase attached to some semireligious; semiphilosophic idea or ghost of an idea, reserving "Psychic Therapeutics" for the more sane scientific aspect of the same subject.

And yet, as we all know, psychic, mental, personal, influence is the oldest and least discredited therapeutic agent in the hands of the physician. There is no drug now in use that is so old. Medieval pharmacopoeias with their crude polypharmacy have become more curiosities and

have given place to the elegant collections of active principles and complicated synthetics, just as the pathologic systems, framed at the writing desk and not at the dissecting table and the bedside, have disappeared before the thermometer, the microscope, and the incubator. The vague guess is giving place to the exacter knowledge not so much because of more earnest search for truth or acuter intellects as because in the march of physical science new instruments of precision are being placed in our hands.

But, through it all, the physician, the man who uses these instruments crude or refined, has held his place, increasing in dignity and usefulness as a helper and healer without regard to his classifications or theories or his system of therapeutics provided always that he knows how and when to use this ancient weapon.

Has there been an advance in the practical use of psychic therapeutics corresponding to the somewhat greater precision in thinking about it?

I am inclined to think not, so far as any increase of mental influence over disease is concerned, but a great deal as regards the knowledge of when to rely upon it to the exclusion of other resources, just as the surgeon considers it a gain in his science if he is able to say more decisively that such and such a case is a suitable one for operation and such another should on no consideration be touched.

We know that a very large part of the morbid processes which go to make the difference between organic health and disease are beyond the control of psychic influences. Fever goes on unaltered, degenerations, intoxications, infections atrophies go their destructive ways neither helped or hindered by the mental attitude of the patient or of the physician, except as they make him more amenable to other methods of treatment, or as they may help by supplementing the failing function with another.

Even many of the most important mental conditisons, where it might be supposed that mental influences would be all powerful, do not yield.

See for instance melancholia and other forms of insanity where the utmost encouragement that can be given is successful only in procuring some alleviation until even more mysterious organic processes shall have run their slower course.

Mental influences come in contact with the organic chiefly, so far as we know, through the vasomotor nerves. Trophic nerves have been long suspected but never satisfactorily demonstrated. Nervous influence upon the heart may affect its action sufficiently to kill in some rare cases and perhaps in the course of along time to affect its structure. Secretions are undoubtedly under a good deal of mental influence as those of the stomach, kidneys. The control of mental states over the activity of the sexual organs and their reciprocal effect upon psychic conditions are well known.

It is through these channels that the more ordinary methods of psychic therapeutics, what we might call mind cure in repeated small doses, acts in chronic disease either helping to more vigor and tone in the function of the organs or symply carrying them along more comfortably while nature and time are restoring normal activity. Many claims are made for hypnotism for the control of morbid conditions in this way such for instance as insomnia, the desire for narcotics, and so on.

Undoubtedly good result have been thus accomplished and it can hardly be doubted that in some case the mystic flavor, the hint at occultism, the idea of supernatural powers may do good, but it is not so certain that the same thing may not be accomplished without the hypnotic condition if the patient can be induced, to have the same con-

fidence based on more common place grounds of b
equally firm, is by reason.

Statistics in such matters are obviously very untrust-
worthy.

A few years ago Mr. H. H. Goddard prepared for his graduation thesis at Clark University a paper upon this class of cures and was kind enough to show me some of the answers returned to him, some of them referring to patients who had been under my care. He came in contact with one man who had had a good deal of success in dealing with many cases of which a considerable proportion were evidently functional nervous, and who was willing to give information which Mr. Goddard believed to be full and candid. He was not a medical man and his diagnoses were consequently not very trustworthy but were probably honest. He was willing to speak frankly of the cases which were cured. This information Mr. Goddard compared with the published statistics of the celebrated medical hypnotists as representing the scientific side of the question. He found that in a general way the two sets of cases corresponded fairly well both as to percentages of cures and as to the class of cases benefitted,

“Dowie says, in certain issue of his paper: ‘I pray and lay hands on 70,000 people in a year.’ At that rate he would have prayed with 175, 000 in 2½ years. But in the 2½ years immediately preceding this statement, he reports only 700 even claimed cures. The conclusion is indisputable that only a small portion of those prayed with are cured.”

—Goddard.

When we came to the wonder cures, the miracle cures, the cases given up to their physicians restored to perfect health, the cancers disappearing without the aid of the knife, the organic diseases condemned to death by the

most eminent consultants, and so on it must be remarked in the first place that they will mostly call for a tremendous discount both in numbers and severity before they are received. They are very much less numerous than they appear. By far greater number when followed up lead one either to the plain lie or more frequently to exaggeration and misunderstanding. Others which appear at first able withstand criticism simple prove erroneous diagnoses honest or otherwise, and have nothing to do with organic disease.

From this point of view I doubt if there has been any advance.

There always have been and for a long time to come will be wonder cures wrought, and they are just as likely to be done (and a great deal more likely to be widely advertised when done) by the most shallow ignoramus as by the most skilful physician.

Such advances as have been made in the art of psychotherapeutics are to be attribute more to a general recognition of its importance and often the futility of other methods, except as adjuvants in building up strenght, removing local causes and so on, than to any special increase of knowledge or important discovery. As we have already remarked physicians have always practiced it but they have perhaps not always been aware that this branch of their art was of more efficacy than means which rests upon learning and tradition and which seemed to them more scientific.

The methods of psychotherapeutics are not easy to teach in a medical school or in formal lectures. They are the result of experience and may be, but seldom are learned by the student in the clinic. Certainly some of them may be put in practice with hospital patients in a way some of use may recollect that any hospitals do not teach. It is not the same with the cultivation of what our

English confreres talk about as a "good bedside manner." It consists in many cases as much as anything in putting one's self in the patient's place and thinking what would be the most helpful not always the most agreeable thing that could be said. It is often more in the hands of the nurse than of the physician and it is not necessarily the trained nurse although if she has the one thing needful, tact and good feeling the training can only add to her efficiency. For the class of patients for whom psychotherapy is of the most consequence a nurse fitted by natural disposition is of much more use than one fitted only in the school.

As for the miracle cures it has already been intimated that the qualifications of the healer are matters which cannot be taught or defined. Experience shows that neither knowledge, good sense, sincerity, or honesty are of any value and lead to no more success than the densest ignorance and utter unscrupulousness, or the most fantastic pseudo philosophy.

Looking at the question from another point of view, that indeed where all therapeutic inquiry should begin is when to use psychotherapeutics or rather when it should be relied upon, the case is a different one.

One need not enquire too carefully when it may be applied for with a careful and well established diagnosis and an efficient plan of general and local treatment psychotherapeutics can hardly be misapplied. But this proviso is of the utmost importance.

Consolation and encouragement to a patient who is known to have organic disease that can be relieved by the ordinary procedures of medicine and surgery offered to prevent or dangerously postpone the necessary treatment is at best but a ghastly mockery, perhaps kindly meant but none the less disastrous, while at the worst it approaches too closely the limits of criminal neglect.

Knowing as we do the conditions over which the action of the cortical centres has no control and those others where it can be considered and adjuvant we find left a region where psychotherapy is essential and supreme.

There are functional disturbances of great gravity arising in the very region whence we try to stimulate and organise the forces for their control. Even when we must acknowledge that organic changes are either hereditary or have taken place under observation agencies acting solely through the voluntary motor centres may be the only ones which bring the defective organism up its maximum possible efficiency. The employment and amusements and the judicious management now given to the insane are undoubtedly more efficient toward recovery, although not competent themselves to complete it, than any of the drugs which have been used.

The bringing of defective children up to the point of their greatest possible usefulness and comfort, as accomplished in the best training schools for that purpose, is a matter of psychotherapy, the training of the hand through the motor centres of the cortex and their reciprocated stimulation to the mental functions.

The supplementing of destroyed nervous tissue by the making use of other paths of conduction, as in tabes, is a distinct advance. In this case it is not so much the strengthening the muscles by exercise as in training them to act under the educated stimulus of other centres.

Of course it is in the condition or group of conditions many and various which we call hysteria of which we know so little of the essential underlying nervous disorder and so much of the manifestations that we can most firmly rely upon mental influences both for prophylaxis and treatment. There is little doubt that judicious education including as its most important and decisive part home training an example may have a most potent influence for

good in the case of children with any tendency to such an affection.

Temperament and hereditary tendencies cannot be totally reversed, but for many of the early years the surroundings can be made to modify and restrain the growing tendencies to nervous instability, selfishness and introspection.

Who that has watched the developments in recent years in the knowledge of these strange conditions and has seen or heard of the wonderful things done and said to be done by almost every agency known to therapeutics, scientific or fanciful, can fail to recognize that the real and active agent is not the drug or the ray or the current, but the person who uses it or the faith with which it is received by the patient?

The exact field covered by the word "hysteria" varies much according to the views of the particular writer who uses it. The "neuromimesis" of Sir James Paget well distinguishes a subclass which is quite distinct from the more popular idea of hysterics or from the extreme highly developed manifestations so carefully by the Salpêtrière school. The still more limited traumatic neurosis popularly and legally but often erroneously and which furnishes an important contingent to the number of cases of the kind we are considering supposed to be always curable by a verdict for damages is an instance of the apparent bodily damage which can be done by the "fixed idea" and sometimes the corresponding benefit which insues from suitable mental influence.

What observing physician can fail to see what a wide field is covered by purely functional affections of the psychic centres again had vastly important it is that this broad cloak should not be allowed to cover with its therapeutics the cases which are placed under it not by careful diagnosis but by mistake or carelessness.

Pregnancy Following

VENTRO-SUSPENSION OF THE UTERUS, BY HENRY T. WILLIAMS, M. D. ROCHESTER, N. Y., VISITING SURGEON OF ROCHESTER CITY HOSPITAL AND ST. MARY'S HOSPITAL. WITH

REPORT OF CASES.

It has been claimed by many that ventro-suspension interferes with a future pregnancy. Many of the disadvantages urged are: the marked retraction of the scar, due to the dragging uterus; the failure of the anterior portion of the uterine body to expand, and the thinning of the posterior part of the uterus the production of abortion or premature labor, and the prolongation of the normal period of gestation. It is also claimed that the uterus may tear loose from its moorings and the consequent formation of a large hematoma at the point of rupture, and the uterus, itself, may be ruptured. It is also claimed that the difficulties during labor may result from the inability of the thinned out posterior wall of the uterus to expel the fetus. It is a well known fact that *ventro-*

fixation of the uterus is a frequent cause of dystocia, and *that* operation is now condemned by most eminent gynecologists, but I think that ventro-suspension is now considered by most authorities as quite satisfactory. In my own experience of twenty-eight cases of ventro-suspension in which pregnancy occurred afterwards, and which cases I have been able to follow difficult labor occurred in but one, and one case only miscarried at the third month, but in neither of these cases did I think that ventro-suspension was a factor. Cases have been reported where difficult labor has followed ventro-suspension and has been due to adhesion between the uterus and the abdominal wall, which have followed a more or less localized infection at the time of operation. I will mention but five cases: Mrs. R— age twenty-seven, mother of two children, was operated upon by me September 1896. The right ovary and tube were diseased and were removed, and the uterus was held in place by ventro-suspension. Her health improved very much after this and she was relieved of the constant dragging sensations from which she had suffered previous to the operation. She became pregnant three years afterwards and labor occurred in April, 1900. It was perfectly normal in every respect, the labor from beginning to end only lasting about two and one-half hours. The uterus has remained in position ever since and has never given her any trouble.

Mrs. B—, age twenty-four; never pregnant; ventro-suspension performed March, 1899. The operation was followed in one week by a serious infection, the pus forming around the wound and along the sides of the uterus. She was seriously ill, with high temperature, for two or three weeks. She then recovered and was well afterwards. Two years later she became pregnant; went on to full term, and had a rather prolonged but otherwise normal labor. The uterus has remained in position ever since.

Mrs. M—, age twenty-eight; never pregnant; ventro-suspension performed September 1898, one year later she became pregnant and miscarried at the end of three months. Since then she has been delivered of a healthy child; labor was normal and she has been well since.

Mrs. H—, age thirty; two children; the youngest eighteen months old at the time of operation; operated upon December, 1900; left tube and ovary badly diseased and were removed; uterus held in position by ventro-suspension; patient was well afterwards. She became pregnant and labor took place in February, 1902. Her previous labors had both been slow and trying. The physician who attended her, reported to me that she had a very tedious labor; that the uterus did not seem to contract well and she seemed to have very little expulsive power. After she had been in labor twelve hours, he delivered her with forceps in the superior straight. The child was quite large. The uterus did not contract well after delivery and she had considerable hemorrhage. She recovered finally, and the uterus has remained in place since; and I understand she is quite well.

Mrs. R , twenty-seven; one child three years previous. At the time of the birth of this child she had a slow, tedious labor. The child weighed a little over ten pounds; the cervix and perineum were extensively lacerated during birth. When she came under my observation, two years afterwards she was very much run down, pale and anemic; complained greatly of dragging sensations in the pelvis, and great irritability of the bladder. I found besides the extensive laceration of the cervix and perineum, a large retroverted uterus. After she was built up by tonics, fresh air, etc. and the condition of the cervix improved by douches and treatment, I repaired the lacerated cervix and perineum, also did a ventro-suspension, and resected the right ovary which was enlarged and cystic, taking out about two-thirds of the ovary.

She became pregnant 3 months afterwards. Her Labor was normal in every respect, pains beginning in the morning, and the child was born in the afternoon. Although the child weighed eleven and one-half pounds no instruments were required and there was no laceration following. Both she and the child have been very well ever since. Uterus remained in good position, and she has no trouble with her bladder. The operation that I have performed in all of these cases, has been a modified "Kelly" operation. I prefer to fix the uterus in only a slightly anteflexed position. If it is fixed too far forward it is apt to cause trouble from its pressure on the bladder, and also to be a cause of dysmenorrhoea. I make a small abdominal incision (never more than two inches, usually less) through the peritoneum. After scarifying with a scalpel the fundus of the uterus, and also that portion of the peritoneum to which I stitch the uterus, I then pass two silkworm gut sutures through the skin, muscles, fascia, and peritoneum, and about one-eighth of an inch deep through the fundus of the uterus, putting the sutures about an inch apart and about three-quarters of an inch either side of the incision in the abdomen; having an assistant hold these sutures, I stitch the peritoneum to the fundus of the uterus with medium size catgut sutures. I then sew up the abdominal incision in the usual way, generally with figure of eight silkworm gut sutures. I then draw up the fixation sutures and pass an ordinary bone button over the ends of each one and hold them in place by four shot run over the ends of the ligatures on to the buttons and clamp. I usually do not remove these sutures before two and one-half or three weeks. If a patient is examined a few months after this operation, the uterus will be found freely movable, held in position from the fundus only by ligamentous like bands.

THE OVER ZEALOUS

TREATMENT OF CORNEAL AND CONJUNCTIVAL INFLAMMATIONS

BY GEORGE F. SUKER, M. D., AND MARK D. STEVEN-
SON, M. D., AKRON, OHIO, U. S. A.

The enthusiasm manifested today by the ophthalmic practitioners in the employment of the many new pharmaceutical preparations—extolling this one as the *sine qua non* for this or that corneal or conjunctival inflammation—or vaunting this particular mechanical interference for any and all ulcerations of the cornea and conjunctiva, has been the impetus for this paper. It is not taking things for granted in presuming that this remark does not hit wide of the present status. It is an opportune time at this gathering of Pan American ophthalmologists to call especial attention to the fact that our brethren across the pond are the ones largely concerned in extolling this kaleidoscopic ocular pharmacy. On the other hand, we as Americans are likewise guilty of placing too much faith and confidence in the so called European clinical reports. In a measure we follow their experiments, but in truth, the

American Ophthalmologist is rather skeptical. Because of this mild skepticism, he is not prone to fly from one remedy to another in the treatment of corneal and conjunctival inflammation. Though for a moment, he may accede to the glowing reports of news remedies, yet, he readily falls back upon the tried and accepted ones. This marks one of the great differences between European and American practice. It is quite patent that the American practitioner seems to more fully realize the sensitiveness of the cornea and conjunctiva than any other, and therefore hesitates to employ such drastic measures as one frequently reads about. Through it is an accepted fact that an inflamed conjunctiva or cornea apparently tolerates stronger solutions than the healthy one, yet this is not a criterion that it is a good measure to follow.

The over zealous practitioner seems to forget that it is not the application of any particular remedy that causes the cure, but it is the checking of bacterial life as a whole—and what it means—and the supporting of nature that causes a return to the normal condition. In other words, the idea of rendering the involved structures incapable of sustaining bacteria or their products on the one hand, and sustaining the repercutive powers of nature on the other, should be our aim. If this can be attained by the employment of mild and non-destructive procedures, it is our duty to do so. For the less we interfere with nature by our over-zealousness, no matter in what regard, the better. The ophthalmic surgeon is somewhat too strongly imbued with the idea that this or that disease of the cornea or conjunctiva can be aborted—if not aborted, then wonderfully cut short in its duration. But, how often is this a fallacy. Yet in order to accomplish this, he becomes guilty of meddlesome therapy. He above all other practitioners seems to forget that rest is a vital factor in curing any inflammation. Likewise, does he neglect to associate the

eye with the rest of the system and treats, therefore, often the part or the whole instead of the whole for the part. If we would become more imbued with some of the simple surgical principles and carry them out as faithfully as the surgeon does, when he treats corresponding conditions, we would never be guilty of over zealous treatments. A mere mentioning of these simple facts will suffice in order to vividly call before our minds that not only in the clinical practice, but in our own private duties there has been a strong tendency to over do—ignoring simple things, discarding old and tried remedies and flitting about organo therapy and synthetical chemical preparations. Far be it from me to detract one iota from the value of the above methods, yet a word of caution may not be amiss. The spirit of iconoclasm does not prevail with the writer, but rather the tentative feeling of conservatism is the paramount interest.

In order to more tersely bring the matter to a focus, we can advisedly pursue the following line of argument;

First.—Consider the treatment of the milder inflammations of the cornea and conjunctiva—either suppurative or non-suppurative.

Second.—In what regard can we be accused or over-zealousness.

In the simpler inflammations of the conjunctiva as phlyctenulosis, follicular inflammation, milder forms of trachoma, and the less virulent pneumococcal and staphylococcal infections, what need is there of cauterizing, curetting, or excising the follicles, the phlyctenules, or the isolated trachomatous granules, or applying the very strong solutions of the albuminates of silver, such as twenty five percent, or allow the more frequent applications of these than three times a day.

The end results following such measures are not near

as satisfactory as when milder ones are pursued. In the former, adjacent healthy structures are frequently implicated and undue irritations brought about which necessarily delay the recuperative powers of nature. It is better to sacrifice duration of the disease for the protection of the parts involved with their adjacent structures than to strive for the cutting short and sacrificing or rendering more evident the final end of all inflammatory reactions—namely cicaterization and partial or total loss of function. If these stronger solutions are irritating to the healthy conjunctiva they must necessarily be more irritating to one which is inflamed and wherein the nerve terminals are implicated. An undue hyperaemia and even a venous stasis follows the more drastic measures and invariably impedes the carrying away of these products, either of the metabolic or inflammatory type. The writer is not gainsaying any thing against the judicious employment of the more drastic measures in such conditions of the conjunctiva which are deep seated, rapidly progressive, and destructive in nature. How frequently in these conditions is the bandage abused, thinking that immobilization is achieved while the other eye remains uncovered. Any bandage other than that of simple exclusion of light is detrimental; for, every inflammatory reaction of the conjunctiva is accompanied by more or less discharge. This discharge is pent up by the bandage and simply aggravates the condition of affairs. Yet how frequently do we see the bandage employed in the conditions just mentioned. Every bandage produces a certain amount of pressure and unless support is obligatory acts as an irritant because of producing greater friction between the contiguous surfaces. We are somewhat prone to forget that the eye is as well adapted for self preservation when the conjunctiva is affected as any organ of the body. Witness the lacrimal apparatus, the free surface, and the well adapted glandular supply and secretion.

As the majority of the bacteria which cause conjunctival inflammations, not including the Neisser or trachoma bacteria, are of rather low virulency they can readily be combated with the milder solutions of medicaments now in vogue. Bear in mind that quantity of bacteria is in all important factor in the maintainance of conjunctival inflammations.

Therefore, we ought not to employ such measures which have a tendency to destroy either the involved or non-involved conjunctiva because by doing so we would be simply adding fresh pabulum for their maintainance.

As the majority of bacterial infections of the conjunctiva are produced by non-sporing germs, therefore the need of employing the stronger bactericidal solutions is not very great. It is often the too frequent application and the employment of the more drastic measures which exercises a great tendency to destroy the protective epithelium that causes a prolongation of the disease rather than a shortening. This because of self evident facts. In our endeavor to mitigate the inflammation by employing the strong solutions we really set up a chemical irritation, and thus an inflammation, hence are adding but fuel to the fire.

So much for the views that the writer entertains regarding conjunctival inflammations and the over zealous treatment thereof. Now in reference to the corneal inflammations. Let us consider corneal abrasions, simple ulcers, phlyctenulosis, moderate infiltrations from either a parenchymatous or interstitial keratitis, and all such other conditions as would come under this broad classification what has been the custom with some of the ophthalmic surgeons. Has not the cautery and curette played in all too important factor in the treatment of these conditions? Not every simple ulcer either traumatic or idiopathic, primary or socondary, is bound to become indolent, infective, or rapidly progressive, thus involving the deeper structures

of the cornea, and thereby leaving great corneal opacities. Hence, what need of the cautery or curette when treating these conditions upon a simple surgical basis will yield better results though it may take a little longer.

In doing so, we do not jeopardize the adjacent healthy cornea and thus avoid producing larger corneal opacities. To prevent the latter and obviate progression should be the acme of our desire in the treatment. Yet, how often has our over zealousness changed that apparently small corneal opacity into a visibly large one because of the drastic measures employed. Certain it is that if we are dealing with rapidly progressive and infective conditions of the cornea then the writer's argument is not very weighty. For, in order to limit the spreading fire deep furrows must be plowed and scars result in order to save the eye from total wreck and ruin.

In reference to parenchymatous and interstitial keratitis associated with or without pannus, from any cause whatsoever—constitutional, specific, or acquired—we often neglect the whole for the part. These conditions can be more readily combated by paying strict attention to the glandular system and employing but only mild supportive non-irritating local remedies to the eye. Our over-zealousness often leads us to prescribe such internal remedies as have a detrimental effect upon the vaso motor periphery producing a stasis or an undue diapedesis. Not only this but the prescribing of such internal agents in such large amounts so that they must be thrown off to a certain extent by the sudorific glands will act as an irritant to the ocular condition. It is important that the glandular system of the eye be stimulated in these conditions but it must not be brought about by the application of irritant remedies. If it were not our ultimate aim to preserve the transparency of the cornea then it would

matter little whether the agents employed were destructive or not to the surrounding healthy tissue.

It should be endeavor to only apply such local remedy as does not exercise a great tendency in causing or aggravating the vascularity of the cornea. The excrementitious products should be eliminated and disposed of by the lymph channels and not by the newly organized vascular net work. The latter when once formed are never absolutely obliterated while the former may be increased without detriment. Such strong agents which produce an infiltration when applied ought to be used sparingly. Therefore, one ought not to employ such strong solutions of the albuminates of silver or the like in inflammations of the cornea as in the conjunctiva. This is particularly true when the periphery of the cornea rather than the centre is involved in the reaction. Again, in this class of cases the naso-pharyngeal passages are often over looked. The same may be said of the gastro-intestinal tract. We are quite prone to lose sight of a general auto intoxication with local manifestation in the treatment of interstitial and allied forms of keratitis, being carried away in our eagerness for local applications.

The old practice of trying to get rid of a chronic inflammation and its results by engendering upon it an acute variety may be good practice of general surgery and to a limited extend in conjunctival implications, yet it is to be deprecated when one deals with the cornea. The promiscuous cauterization of simple corneal ulcers particularly when centrally located is a treatment out of all proportion to the severity of the condition present. The same is true for simple facettted ulcers and such as arise from impingement of the small foreign bodies. It is granted that now and then these measures are indicated and because glowing results are the consequence we become over zealous and promiscuously employ an agency when it ought

to be preserved for selected cases only, The writer does not refer or include such agents or applications as might be resorted to in the immediate surrounding ocular conjunctiva which may have an effect upon the corneal lesion. Our over-zealousness in the management of milder lesions of the cornea often lead to the production of cloudiness of the cornea which are scarcely perceptible by ordinary methods of examination. Yet they are sufficiently dense to produce blurring of vision out of all proportion to the resulting scar of the initial lesion.

The purport of this paper has been fairly well set forth and though much more may be said in regard to relative conditions of the conjunctiva and cornea, yet simple facts and illustrations have been adduced which clearly set forth that we are at times guilty of over-zealous treatments. The writer does not wish to impune any new advocated method, but desires to say that conservative considerations should enter in accepting or rejecting any of them. In other words, we should never lose sight of the prime principles of surgical therapy.

FIN DEL TOMO SEGUNDO

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